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# LECTURES

ON

# DISEASES OF THE STOMACH

AND

# INDIGESTION.

BY

CATHCART LEES, M.B., T.C.D.,

PHYSICIAN TO THE MEATH HOSPITAL; LECTURER ON PRACTICE OF PHYSIC IN THE ORIGINAL SCHOOL OF MEDICINE, PETER ST., DUBLIN; FELLOW OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND; AND VICE-PRESIDENT OF THE DUBLIN PATHOLOGICAL SOCIETY.

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# PREFACE.

Although the publication of Lectures on Diseases of the Stomach may appear unnecessary at the present time, when so many good works on the same subject have lately emanated from the press; still I trust that these may be found well adapted to the use of Students, for whom they were originally intended. For the last ten years I have been in the habit of lecturing on these diseases in the Meath Hospital, and also in the Original School of Medicine, Peter-street; I subsequently published abstracts of these Lectures in the *Dublin Hospital Gazette*, and now republish them in their present form, after a careful revision, having added to them from other sources whatever I considered useful or of importance, so as to bring them up to the present standard of knowledge. The great use of systematic lectures consists in the commu-

nication of whatever is known on the subject, confirmed by the opinion and experience of the lecturer; this I have tried to effect, and have generally placed within inverted commas the original extracts quoted from each author, so that I trust I have given their due acknowledgment to every one; if not, the omission has been unintentional.

*Dublin, October,* 1857.

# CONTENTS.

# LECTURE I.

*Division of the Subject; Acute Gastritis; Anatomical Characters; Symptoms; Sympathetic Affections; Causes; Diagnosis; Treatment.*

In some introductory observations on the "Pathology of the Stomach," Dr. Abercrombie remarks, that "from various causes, diseases of the stomach have presented a wide field for speculation, conjecture, and empiricism; a vague and indefinite phraseology has often been allowed to take the place of principles; and the whole subject is removed, in some measure, out of the usual limits of pathological inquiry. Amid this uncertainty, we must endeavour to discern what is truth; and should this prove to be more limited than a slight view of the subject might lead us to expect, something will at least be done by ascertaining its extent, and tracing the course by which it may be enlarged." The importance of the subject, the great advance which has been made within the last few years in our knowledge of these diseases, by the aid of animal chemistry, as well as by the use of the microscope, the numerous valuable specimens of disease of the stomach and other viscera of the abdomen, which have been exhibited at the meetings of the Pathological Society of Dublin,

by the various medical officers attached to the several hospitals in this city, and the advantages I have myself possessed, as Physician to the Meath Hospital for a number of years, will, I trust, be considered a sufficient reason for submitting to the profession some observations on the diagnosis and treatment of diseases of the stomach and abdominal viscera.

I shall not occupy time or space by entering into the subjects of anatomy or physiology, as they are fully treated of in works specially devoted to their consideration, but will commence at once with the diseases of the stomach, as I conceive they are among the most important which demand the attention of the student, and the most frequent, as well as the most difficult, that the practitioner is called upon to treat. Many are of that form termed *functional*, leaving no morbid appearance discernible after death; many are what we term *organic*, in which there is decided and evident change of structure, in some cases amounting to great disorganization, and interfering not merely with the vital, but also with the mechanical action of the part; while in others, the appearances are of so doubtful a nature, that they do not afford sufficient ground for the application of any precise principle in pathology; but they all resemble each other in many of their symptoms, causing much distress, both mental and bodily, to the patient, and much anxiety to the physician. We are often able, however, to render essential service to the sufferers, either by curing the disease, if it be of an inflammatory or merely functional nature, or by relieving the more distressing and dangerous

symptoms, even though there exist incurable organic disease. And if we did nothing more than prevent the often injurious though well-meant efforts at cure, to which the sufferers from organic diseases, particularly cancer, are too often subjected, it should entitle us to the gratitude of the afflicted, and form a consolatory reflection to the well educated physician.

The most simple and pathologically accurate classification of diseases of the stomach is into—first, *inflammatory* affections, expressed by the terms acute, sub-acute, and chronic gastritis; second, *specific* diseases, which properly come under the class of organic, and include the various forms of cancer, the simple or chronic ulcer; third, *functional* disorders, which are independent of any appreciable change of structure, although attended with severe symptoms, as pain, vomiting, pyrosis; fourth, *sympathetic* affections, depending on disorder in some other part of the system.

Acute gastritis, by which term I mean to imply acute inflammation of the mucous membrane of the stomach, is a disease so seldom met with as an idiopathic affection in this country, that our knowledge of its anatomical characters and symptoms is chiefly derived from the result of irritant substances directly applied to it, especially the mineral acids and arsenic. Andral has recorded some cases where it occurred as an idiopathic affection, or as the sequel of rheumatism, or of epidemic cholera. In these cases the stomach was generally contracted, so as to resemble the transverse colon, the mucous membrane, over nearly its entire extent, was coated

with a viscid thready mucus, and of a bright red or brown colour, at the same time thick, soft, and very friable, so that in no part could it be detached in strips; but it gave way under the forceps, resembling a pulp without any consistence. On its free surface there were many small red or blackish points, which seemed to have their seat in the villi, but the body of the mucous membrane itself was red, as if penetrated with blood, and spots of ecchymosis were also present. Mere redness, however, is not a certain sign of inflammation, as was long since established by Yelloly, Billard, and others; besides, we have constant proof that any mechanical obstacle to the circulation, as in cases of disease of the heart and liver, will cause deep redness of the gastric mucous membrane, depending on venous congestion, quite independent of inflammation, but owing to that vital contraction of the arteries which takes place at the close of life, and carries on the blood to the veins, after the further supply of fresh blood from the heart is stopped. This form of redness is generally diffused, and occupies the most depending position of the part, being influenced by the force of gravity, is attended with an empty state of the arteries, and with a full state of the larger veins; but the redness that belongs to inflammation is generally circumscribed, and not very extensive; it occupies the upper or lower side of the part indiscriminately, is attended with fulness of the corresponding arterial trunks, and frequently an empty state of the veins. As a general rule, therefore, do not let the mere circumstance of there being redness in a part decide

your opinion as to inflammation having been there, unless you can find other proofs of its presence; and of these (in mucous membranes) softening is one of the most important, the membrane not peeling off in shreds, as is the case when in a normal state.

Suppuration rarely takes place in the parietes of the stomach, but there is a case of it in the museum of Guy's Hospital. It was taken from a married woman, æt. 40, a nurse in the hospital, who was admitted in May, 1847, under Dr. Babington, complaining of pain in her stomach, with vomiting of a dark-coloured fluid, intense thirst, then restlessness and stupor, followed by death. The stomach presented a firm mass of recent pus and lymph, about $4\frac{1}{2}$ inches in length, effused between the muscular and peritoneal coats. The mucous membrane corresponding to the centre of the thick red portion presented a dark brown patch, about the size of a shilling, and also a few points of ecchymosis here and there. The posterior part of the right lobe of the liver was dark, congested, ecchymosed, and lacerable; there was also peritonitis. The thoracic viscera were healthy, it was probably caused by violence, though no certain history could be obtained. Rokitansky states that, in some rare cases, the stratum of submucous tissue is distended with pus, which exudes into the cavity of the stomach by numerous irregular cribriform openings, but this is generally the result of a low form of erysipelas, or may occur as a secondary process, analogous to the metastases of specific acute dyscrasiæ. According to the same authority, false membrane, or as he

terms it, croupy inflammation, is met with in the stomach as a sequela, or degeneration of exanthematic processes, in variola, in typhus, in pyæmia, and particularly in puerperal phlebitis; in these cases it sometimes invests the entire stomach, and presents a regular areolar surface; he also states that tartrate of antimony may produce a similar effect, but that it is commonly limited to a few streaks. In a specimen exhibited at a meeting of the Pathological Society by Professor Smith, the mucous membrane in some places was black, as if sulphuric acid had been taken, but there was no abrasion of the œsophagus or stomach, and a careful analysis, conducted by Dr. Apjohn, failed to detect any poison. Ulceration, sloughing, and even perforation have occurred in some cases of acute idiopathic gastritis; these sequelæ, however, are seldom met with except from the action of corrosive poisons, but you should be aware that arsenic frequently produces no local effect, particularly in cases where the symptoms of poisoning and death follow rapidly after the introduction of small quantities.

*Symptoms.*—The attack may commence suddenly, or be preceded by the ordinary general symptoms of acute inflammatory disease, such as high fever, burning dry skin, quick pulse, short hurried respiration; there is great anxiety and restlessness, throwing off the bedclothes; the tongue is generally of a bright red at the point and edges, but its surface is covered with a thick yellowish-white fur, and the patient complains that it feels thick and sticky; there are headach and total absence of sleep; the urine

is very high-coloured, acid, and scanty; and the bowels are constipated; there is often a sharp hard cough, with a peculiar jerking respiration, owing probably to the instinctive rapid contraction of the diaphragm; the countenance is often sunken, and the prostration is very great.

Of the local symptoms of gastritis, *pain*, referred to the epigastrium, and increased on pressure, is one of the most constant and remarkable, though it varies in different individuals, in some being a severe burning pain, in others rather a painful sense of constriction; *thirst* for cold drinks; *nausea*, recurring frequently; *vomiting* of intensely bitter fluid, often of a bright green colour; *dysphagia*, probably caused by spasm at the cardiac orifice of the stomach; *hiccup*, one of the most distressing accompaniments of this disease, and though generally a late symptom, yet it may occur at the very commencement, and has been then considered by Dr. Stokes and others as indicative of inflammation round the cardiac orifice of the stomach. A case of this kind occurred in the Meath Hospital under the care of Dr. Stokes, in which, after the sudden disappearance of pneumonia of the lower lobe of the left lung, the patient was attacked with vomiting, followed by severe hiccup. There were extraordinary prostration of strength, thirst, and a craving for cold and acidulated drinks; the epigastrium was tender, and the bowels were confined; the tongue was clean and moist: the hiccup continued incessant even during sleep, though then somewhat modified. Notwithstanding active treatment for the gastritis, death took place on the fourth day of the

abdominal disease. On dissection, we found that the inflammatory action was circumscribed in a most remarkable manner for about three inches round the cardia. Here the mucous membrane was of blood-red colour, thickened and softened, while that of the rest of the stomach was perfectly healthy. The lower portion of the œsophagus was vascular, and the cuticle separated so as to form shreds on the surface of the tube. A similar state of parts was recently observed in another case in Dublin, in which incessant and intractable hiccup was the prominent symptom.

In persons who have died suffering from incessant hiccup after severe sea-sickness, the cardiac orifice of the stomach has been also found inflamed. Hiccup may, also, be met with as a prominent symptom in other diseases, such as cholera, fever, and inflammation of the lungs and pleuræ, an example of which occurred in a case lately under my care in the Meath Hospital. A man, ætat. 35, was admitted, suffering from severe hiccup; his face was deadly pale and collapsed; skin cold; pulse 64, very feeble; he complained of pain in his head and stomach, but appeared listless and apathetic; his whole body was shaken by the violent spasm, but of a curious character, as if constituted by a double paroxysm; he winced when pressure was made on the epigastrium, but he had no nausea, vomiting, nor thirst; his respiration was tranquil; tongue furred; abdomen much retracted; he was in perfect possession of his senses, and stated that his illness commenced six days previously, with severe pain in the

stomach, at the time I saw him he was evidently sinking, and died in a few hours. *Post mortem* examination revealed acute inflammation of the pleura covering the right side of the diaphragm, evidenced by great vascularity and effusion of lymph; there was slight vascularity at the cardiac orifice of the stomach, so that I have no doubt but that this was a case of diaphragmatic pleurisy simulating gastritis; and it should teach us how cautious we ought to be in trusting to symptoms alone for the diagnosis of disease, for though the symptoms all indicated the stomach as the seat of the affection, yet the appearances after death satisfied me that they were merely sympathetic, and that the real disease was located in the pleura.

The case of acute gastritis, recorded by Dr. Stokes, affords a good example of the fallacy of placing too much reliance on the appearance of the tongue in diseases of the stomach, as our best observers are now agreed that there is no necessary direct relation existing between them. Andral and Louis (after extensive observations on the subject) are both agreed that "there is no modification of the one, corresponding with any special modification of the other," and we have had many opportunities of corroborating this opinion in the Meath Hospital; but I do not wish to undervalue the inspection of the tongue in disease, its condition is never to be disregarded, but it ought to be examined more with reference to the general state of the system than as an index of local disease. It is probable that in those cases where the tongue is not affected by important derangements of the stomach, it is

owing to the interruption of ordinary sympathies in consequence of some powerful impression on the nervous system. On this supposition we may explain the fact, that the persistence of a clean moist tongue from the commencement is one of the very worst signs in a bad case of typhus fever, and we may regard a moist tongue with intense thirst, or a peculiarly dry tongue without thirst, as a bad omen.

Sometimes, however, none of the usual symptoms of gastritis are present, and if we have not seen the patient at an early period of the attack, or received an accurate history of the case, we may be deceived; as the sympathetic affections of the gastric mucous membrane are generally severe and numerous, simulating disease of the nervous, respiratory, or circulatory systems, according to the habit and degree of susceptibility of the patient, the irritation being at one time reflected on the brain, and we have then a predominance of nervous symptoms indicated by intense headache, restlessness, intolerance of light, delirium, convulsions, and coma; in fact, symptoms indicative of inflammation of this organ, and yet no alteration be detected in the nervous centres after death. A remarkable case of this kind occurred in the Meath Hospital under the care of Dr. Stokes. A man was admitted labouring under violent maniacal excitement; the eyes bloodshot, and his aspect ferocious; he had thirst, a dry and shrivelled tongue, but the belly did not seem tender; the pulse was quick and weak; the cerebral symptoms increased, and he died on the eighth day. Dissection revealed intense inflam-

mation of the stomach and digestive tube, but none in the brain or its membranes.

Andral has recorded two cases, which are remarkable examples of the predominance of nervous symptoms in gastritis; in one case the usual symptoms were suspended by the supervention of tetanus; in the other, the symptoms were those of violent inflammation of the brain, and yet, on dissection, no morbid appearances could be discovered in the brain or spinal cord, but the inner coat of the stomach was intensely inflamed in both cases; and they afford good illustrations of a pathological law which we ought always to bear in mind when treating diseases of the digestive system, namely: "*that when the sympathetic symptoms acquire a certain degree of intensity, the more usual, or what may be termed the local symptoms, are either greatly lessened, or altogether wanting.*

Illustrations of this law occur in the practice of every physician, particularly in the case of children's disorders, where we often meet with this apparent transition of disease, inflammatory affections of the stomach and intestines simulating cerebral disease, and the headache, delirium, even convulsions subsiding on the application of leeches to the epigastrium. The heart may also be affected from sympathetic irritation in the stomach, evidenced in some cases by increased impulse, in others by occasional intermissions of its pulsations, by irregular action, or violent fits of palpitation; but the organs of respiration suffer more from this sympathetic irritation than any other system, as their intimate nervous connexion by the branches of

the par vagum, and their anatomical relations, might lead us to suppose; in fact, hurried breathing, with or without cough, is a very constant symptom in inflammatory conditions of the stomach, in children particularly, and it is in these cases that the great advantage of the stethoscope is manifest, for without its aid we should often find great difficulty in making up our mind as to the exact seat of the disease.

A good example of this difficulty occurred in the case of a man admitted under my care to the Meath Hospital, complaining of tightness across the chest, great difficulty of breathing, severe harassing cough, and expectoration tinged with blood. His chest was examined carefully by Dr. Stokes and myself, but we could not detect any disease in his lungs; we also learned that his illness had commenced with sickness of stomach and vomiting, after committing an excess in drinking, and therefore concluded that it was a case of sympathetic irritation of the lung depending on gastritis, and all the pulmonary symptoms rapidly subsided under treatment directed to the stomach. Dr. Stokes has laid down some valuable rules to guide us in our diagnosis of these cases: first, the want of proportion between the apparent symptoms and the physical signs derived from auscultation; and secondly, the length of time the symptoms have lasted; for, if symptoms of violent pulmonary disease are present, and yet no physical signs of inflammation can be detected by percussion or the stethoscope, after some days, we may feel certain that the symptoms are caused by some sympathetic irritation.

*Causes.*—Acute gastritis is rarely produced by the common causes which excite inflammation in other parts of the system, as cold, damp, fatigue; its causes may be said to be such as act, not so much through the general system, as by a direct operation on the stomach itself. It most frequently results from caustic or irritant substances taken into the stomach. Large quantities of cold water, ice, cider, sour beer, taken after fatiguing exertion, when a person is heated and *exhausted*, are highly dangerous; excess in eating or drinking, particularly if the person be convalescing from an acute disease, is very apt to induce it. We meet with it also in some cases of delirium tremens by excess, and it may then be the cause of a sudden fatal termination, as occurred in a case of a young gentleman whom I lately attended, who was attacked with delirium tremens after a debauch. I saw him on the fourth day of his illness, when he complained of intense desire for cold drinks, but which he vomited instantly; he was in a state of collapse, no medicine would stay on his stomach, nor could we even vesicate the epigastrium, and he died suddenly (when sitting up to take a drink), in a few hours after my first seeing him.

Inflammation of the mucous membrane of the stomach may be caused by other conditions besides those I have enumerated; thus severe or long continued abstinence will be followed by changes in this membrane which much resemble those caused by inflammation; this state has been particularly noticed by M. Andral, who says: "In some experiments which I under-

took with M. Gavarret, for the purpose of determining the composition of the blood in animals deprived of food, one circumstance particularly struck me, namely, a notable augmentation in the proportion of the fibrin. My astonishment ceased, when on opening the bodies of these animals, I found in their stomachs evident signs of inflammation, such as bright redness, softening, and numerous ulcerations of the mucous membrane."

These facts should be constantly borne in mind by all practitioners, when treating cases of *continued* fever, particularly in this country, as there is no doubt but that abstinence or *low diet,* too long persisted in, has often been productive of very bad consequences in such cases, and hence you see that we allow our patients in fever to have bread and milk, or tea, from the very first, and nutritious broths at a very early period; in fact, as forcibly expressed, by my talented predecessor, the late Dr. Graves, we "feed our fevers."

Inflammation of the mucous membrane of the stomach may also be excited by the introduction of a noxious poison at a remote part, as occurred in the experiments performed by Mr. Hunter, Home, and Sir B. Brodie, who states that "the inflammation is greater in degree, and more speedy in taking place when arsenic is applied to a wound, than when it is taken into the stomach. The inflamed parts are in general universally red, at other times they are red only in spots. The principal vessels leading to the stomach and intestines are turgid with blood; but the inflammation is usually confined to the

mucous membrane of these viscera, which assumes a florid red colour, becomes soft and pulpy, and is separable without much difficulty from the cellular coat, which has its natural appearance;"* that he has never found ulceration or sloughing of the stomach or intestines in any of his experiments, but thinks it may terminate in these ways, if the animal survived a certain time; and though the inflammation from arsenic, occupying in general the whole of the stomach and intestines, is more extensive than that from any other poison with which he was acquainted, yet it does not affect the larynx or œsophagus, and this circumstance distinguishes it from the inflammation which is occasioned by the actual contact of irritating applications. In nearly similar cases which have occurred in the human subject, violent pain in the belly, vomiting, and diarrhœa have been the chief symptoms; and after death marks of extensive inflammation of the mucous membrane of the stomach and intestines are found. We have also evidence of the noxious influence of a morbid poison acting on the stomach through the blood, in the case of yellow fever, in which we find great congestion of the stomach; and we may also include, under the same head, many of the cases of sudden retrocession of gout, when violent pain in the stomach, with constant vomiting and high fever, occurs during an acute attack of this affection in the joints, and which we may consider as gouty inflammation of the stomach, requiring a very different line of treatment from the more

* Philosophical Transactions, 1812.

frequent form of spasm or cramp in the stomach, which is not inflammatory, not attended with vomiting or fever, and is best treated by stimulants.

*Diagnosis.*—The diseases most likely to be mistaken for gastritis are *peritonitis* and *hepatitis*, as they are both inflammatory diseases, attended with severe pain and tenderness in the epigastric region, vomiting, thirst, and the other symptoms of gastritis; but our diagnosis should be derived first from the situation of the pain, which in peritonitis is diffused generally over the abdomen, while in hepatitis it is confined to the hepatic region, and generally accompanied with physical signs of enlargement of the liver; the peculiar character of the thirst and history of the case will also serve as guides to the diagnosis. Gastrodynia, nervous vomiting, hepatic and nephritic colic have each in their turn been mistaken for it, but the absence of fever, as well as the other symptoms peculiar to each case, should prevent your making such errors. The severe gastric symptoms which occasionally usher in an attack of acute hydrocephalus and ether diseases of the brain, might deceive you, but they are seldom attended with the intense thirst and epigastric tenderness which characterise gastritis. The extreme irritability of the stomach which often precedes the eruption of scarlatina or variola might also mislead you, if you were not on your guard, as you often have intense thirst, vomiting, pain in the stomach, as premonitory symptoms in both these diseases, so never be in a hurry to make a positive diagnosis in such cases, for though at first the

exact diagnosis may be difficult, yet you will generally find that other symptoms will soon develope themselves, and enable you to come to a right conclusion.

The indications of treatment in acute gastritis are, 1st, to remove the exciting cause; 2nd, to relieve the inflammation as quickly as possible; 3rd, to avoid everything that can excite the stomach; 4th, to moderate the sympathetic affections. If poison has been taken, you must try to remove it, and neutralize its effects; but if the case be idiopathic, and you see it at an early period, you should commence the treatment by bleeding from the arm watching its effects carefully; for, though the type of the fever is at first inflammatory, yet it rapidly assumes a typhoid character, and is then apt to deceive the physician, who, merely regarding symptoms, only sees debility in the prostration, and plies his patient with stimulants, which aggravate the debility by increasing its cause; so, if the pulse increases in strength while the blood is flowing, you may persist till fainting is induced; but the chief remedy consists in the application of leeches to the epigastrium, and more advantage is derived from applying them in relays, than in abstracting much blood at once, and you will often find all the symptoms subside during their application. Apply a light poultice after the leeches fall off, and keep the patient perfectly quiet in a horizontal position, for this disease exercises a very depressing influence on the action of the heart, and fatal syncope may be easily induced. Let him have very small quantities of *cold* drink at short intervals; iced water

or a lump of ice left in the mouth till the edges are smoothed, and then swallowed, is very grateful. Be cautious of effervescing draughts, as they often aggravate the pain by distending the stomach with gas. Give one grain of calomel every second hour till the mouth is affected, and, if the vomiting and pain are severe, follow each powder with one or two drops of dilute prussic acid in cold water; blister the epigastrium, and dress the blistered surface with a quarter or half a grain of acetate of morphia in powder or mixed with lard. Do not give any purgative by the mouth, as it would be rejected, and only increase the inflammation; but use enemata, either purgative or of warm water or gruel; if there is any irritation in the bowels, you will often find opiate injections of use; twenty-five or thirty drops of laudanum in three or four ounces of starch will allay tenesmus, and also often help to tranquillise the stomach. Be very cautious of allowing any solid food or stimulant, as a relapse is easily induced, and generally proves fatal, indicated by the tongue becoming covered with apthæ, the pulse quicker and smaller, great emaciation, restlessness, and debility, vomiting, or rather regurgitation of everything swallowed, and of a dark substance like coffee-grounds, but which is blood, modified by the chemical action of the gastric fluids, the countenance gets greatly sunken and the abdomen swelled; finally, all pain ceases, except in the case where perforation of the stomach has taken place from the action of some corrosive poison.

Dr. Wood, of Philadelphia, states that he has seen one apparently desperate case (where the

symptoms indicated gangrene) recover under the use of oil of turpentine, given in small doses, in combination with laudanum.

## LECTURE II.

*Sub-acute Gastritis; Symptoms; Diagnosis; Causes; Treatment; Epigastric Pulsation.*

Although acute idiopathic inflammation of the mucous membrane of the stomach is very rarely met with, yet a state of irritation, or sub-acute gastritis, occurs frequently as a result of the stimulating properties of wine or spirituous liquors; and though we seldom have an opportunity of seeing the condition of the mucous membrane under such circumstances, yet Dr. Beaumont informs us that on several occasions, after a fit of intemperance, he found St. Martin's stomach red, dry, and erythematous, or coated with adherent viscid mucus, and that patches of apthæ or abrasions were also often met with, as a result of such irritation. Patients suffering from this disease complain of general discomfort, a sense of oppression and distention at the epigastrium, which is tender to the touch; there are flatulence, nausea, and a sensation of heat and fulness in the stomach, especially after taking food, no matter how small in quantity, or of how simple a kind. They suffer from dryness and irritation; often actual inflammation of the throat and fauces; acid, acrid eructations are also very distressing; there is thirst for cold drinks, especially during the process of digestion,

when the pulse is quickened, and there are frequent retchings and vomitings, especially after anything taken into the stomach, the matter vomited being generally ropy, colourless, and abundant, or coloured with bile; there is a state of general malaise, great depression of spirits, and prostration of strength; a dark or sallow circle round the eyes, which are sunken in their orbits, and total loss of appetite. They complain of an unpleasant, dry prickling sense of heat in the palms of the hands and the soles of the feet, especially towards evening; the tongue is red at the point and edges, indented by the teeth, or coated with a thick fur; the bowels are generally costive, and the evacuations dark-coloured and highly offensive; the skin is dry at first, but there is often a great tendency to perspiration, particularly at night; the urine is scanty, high-coloured, acid, and deposits lithates. They often suffer from severe frontal headachs, vertigo, pains in the back and limbs, palpitation and cough, of a hard, paroxysmal character, which may be so severe as to draw the attention away from the stomach symptoms, an example of which occurred in the case of a young gentleman whom I saw in consultation with his usual medical attendant, who supposed him to be in an advanced stage of consumption; and, certainly, the extreme emaciation, constant cough, and profuse nightly perspirations, appeared to justify his suspicions; but after carefully exploring his chest, and not being able to detect any physical sign of disease, I came to the conclusion that the symptoms of disease of the lungs were merely sympathetic, a further examina-

tion satisfied me that the stomach was the organ at fault, and the successful result of treatment directed to that viscus confirmed me in my opinion. The diagnosis of such cases (in which we are in doubt as to the origin of gastric irritation, or its connexion with pulmonary disease) is often very difficult, as the extreme emaciation and profuse nightly perspirations are liable to deceive, and lead us to pronounce the case as one of tubercular phthisis.

In hooping cough, also, it is sometimes difficult to decide whether the frequent vomiting be kept up by gastric irritation; and in those troublesome cases, met with in young females, in which vomiting occurs frequently in connexion with paroxysms of severe cough, it often depends as much on gastric irritation as on the convulsive action of the respiratory organ. In all these cases, therefore, we must institute a careful examination into the previous history and symptoms, as well as the existing physical signs, when, if the stomach be the organ at fault, we will find that the primary symptoms were referred to this viscus. The face generally presents a fretted, anxious, painful expression; there is a circumscribed patch of redness on one or both cheeks; the lips are dry, scaly, cracked, and often bleeding, in consequence of being picked; the eyes are sunken and dull, with a yellow tinge of the conjunctiva; the tongue is red, dry, and fissured; the papillæ very prominent, and it is often covered with apthæ; the bowels are very irregular, the evacuations dark-coloured and highly offensive. This is a very dangerous form of disease, particularly when it attacks

young girls or children, or if it supervenes at an advanced period of other diseases—as simple continued fever, or any of the inflammatory affections, as pneumonia; there is a peculiar rawness and tenderness of the whole mouth and throat, with a dry and glazed appearance of the tongue, a deep redness of the pharynx, which, in some cases, presents one continued dense crust of an apthous character; there is tenderness on pressure in the epigastric region, with pain along the course of the œsophagus, and great uneasiness in the stomach, excited by the mildest articles of diet. In some cases there is constant vomiting, in others, both vomiting and diarrhœa; in fact it then assumes the character of what is popularly termed gastric fever—the intestines become distended with flatus, there is hiccup, low muttering delirium, stupor, subsultus tendinum; in short, all the symptoms of bad typhoid fever, and they die either of exhaustion by sudden syncope, or rapid effusion takes place on the brain, or bronchitis supervenes, and appears to be the cause of the patient's death.

The treatment of the milder forms of sub-acute gastritis is simple, for as they are mostly caused by errors of regimen, a farinaceous and abstemious diet will often suffice for their removal; but in some constitutions, particularly if neglected, the complaint, though mild at first, becomes very serious, and often tedious, requiring great skill, care, and judgment, for there is no disease in which you are more liable to lose the confidence of your patients or their friends, unless you explain the nature of the case, its

uncertain duration, its liability to relapse, and its occasionally fatal termination. The late Dr. Cheyne, one of our most successful practical physicians, remarked, with reference to this disease, that, "long and watchful practice confers no greater boon than in enabling a physician to be inactive without loss of character, or the danger of being supplanted by those who think it necessary to practise, not only for the benefit of their patients, but on the credulity of their friends or attendants." The chief points in the treatment are: first, to allay inflammation by the application of leeches, according to the urgency of the case, the age and previous condition of the patient; second, not to irritate the mucous membrane by a farrago of medicines, but content yourself by treating the most prominent symptoms. Two grains of mercury with chalk, or magnesia, at night, or the same quantity of blue pill, combined with a grain of extract of hyoscyamus or lactucarium, given for the first eight or ten nights, will allay irritation and promote healthy secretion; if there is much irritability of stomach, give one or two drops of dilute hydrocyanic acid with three grains of bicarbonate of soda in an ounce of distilled water, every two or three hours; if the skin is very dry, give two grains of nitre in an ounce of water or almond emulsion every two or three hours, and allow small quantities of mild fluids to be drank at a time, either barley water, or gum and water, or equal parts of milk and soda water or seltzer. Be very cautious of purgatives, as a very small dose of medicine often exerts a powerful effect, so, if an aperient is required, give phosphate of soda

in weak chicken broth, or a solution of magnesia or soda with lemon-juice; but it is safer to regulate the bowels by enemata. If the discharges from the bowels be very frequent and serous, or mucous, you must check them by small enemata of starch, one to three ounces, with from two to fifteen drops of laudanum, according to the age of the patient; if the evacuations be very offensive or pungent, have some peat charcoal always left in the utensil, or you may give charcoal prepared from wood (of the poplar if possible), very finely powdered, in doses of ten or twenty grains. After five or six days you may allow them chicken broth or beef tea, and if the bowels are regular, and there is tendency to perspiration, the mineral acids will now prove beneficial —twenty minims of nitric acid, with thirty of muriatic, in eight ounces of water; an ounce every three or four hours will be agreeable to the palate, tend to quench thirst, remove the clammy, disagreeable taste from the mouth, and allay morbid irritability. When there is great tendency to constipation, I have found small doses of sulphate of quinine, with sulphate of potash and dilute sulphuric acid, to agree very well; wine will often be requisite, but you must commence its use carefully.

A table spoonful of sherry, or claret, or some of the Rhenish wines, diluted with water, and given every three or four hours, will be sufficient to commence with; but no point of practice requires greater consideration than the giving or withdrawing wine in this form of disease, for there is a tendency to debility and prostration of the powers of life at all periods of in-

flammation of the gastro-intestinal system, and this condition will be aggravated by wine given at an early period; but in the advanced stages, when the pulse is small, irregular, or unequal, when the impulse of the heart is feeble and its sounds indistinct, when the circulation in the extremities is languid, you may then give wine freely, or even whiskey or brandy; a tea-spoonful in a cup of warm milk, or arrow root, or sago, every hour, according to circumstances, may be given with advantage. If there be much tympanitis, it is best treated, in the early stages, by turpentine fomentations and enemata; but in the latter stages, turpentine may be given internally in half-drachm doses; and if there be much febrile irritability at night, with want of sleep, much benefit will be derived by having the legs and feet sponged with tepid water and vinegar, or dilute nitro-muriatic acid.

With regard to the diet: in all forms of subacute gastritis, it is necessary, in regulating it, to have reference to the stage and degree of the inflammation and the state of the system. You should remember that the stomach, though in a state of inflammation, yet is the viscus through which the system is nourished, so that though it might be desirable to restrict the diet rigidly if we only regarded this organ, yet we must bear in mind that the whole system may suffer; and the stomach itself be injured by extreme abstinence, when the system is requiring support. Such are the sympathies of this viscus with the other parts of the system, that the suffering caused by deficient nutriment in remote parts, is reflected upon it with especial force, and the stomach may thus be inflamed

though the body is sinking from inanition, as was proved in the experiments of Andral and Gavarret, which I mentioned in the previous lecture.

I was near omitting to mention a very important sign which is often met with in sub-acute gastritis, namely, increased pulsation of the abdominal aorta, or its immediate vessels, which is symptomatic of inflammatory disease in the digestive system, analogous to the morbidly increased action of the radial artery in whitlow, or of the carotid or temporal arteries in cerebritis. It is often observed in gastro-enteric fever, and in peritonitis, when the want of proportion between the action of the radial and the abdominal arteries is often very striking; the pulse at the wrist being small and feeble, while the abdominal pulsations are comparatively violent. It may, however, occur, as a mere nervous condition, particularly in females, and also sometimes precedes the appearance of the menstrual discharge, when, if the patient be at the same time suffering from gastric fever, it might lead to a serious error in practice, which I was near committing in the case of a young lady, who, about the tenth day of gastric fever, complained of severe pain in the stomach, and on placing my hand there I detected violent throbbing of the aorta. I at first feared that it depended on an increase of the inflammation, and was going to order leeches to be applied, but as the other symptoms did not correspond, and it was near her menstrual period, I determined to wait, and was gratified the next day by finding that the increased pulsation had subsided, and the menstrual discharge had appeared.

## LECTURE III.

*Passive Congestion; Chronic Gastritis; Mamillation; Treatment; Catarrh of the Stomach; in Drunkards; Treatment.*

Before commencing the subject of chronic gastritis, I wish to say a few words on *passive congestion* of the stomach, which consists in a morbid turgescence of the vessels of the mucous membrane, interferes with its proper functions, and often leads to chronic inflammation of that viscus. The causes of passive congestion are referrible to some obstruction to the onward course of the blood, or to an atonic state of the vessels, often owing to irregularities of diet, especially in chronic diseases, or in convalescence from acute diseases, and is mostly observed in the splenic region of the stomach. The muscular coat is generally much relaxed, and the congestion extends to the vessels in the sub-mucous tissue. Congestion from obstruction may be produced from impediments to the passage of the blood, either through the liver, the lungs, or the heart; but the effect on the stomach is the same in all cases—namely, congestion of its vessels. The "hob-nail," or whiskey liver, is the most frequent as well as the most important of these causes, for in this disease the current of the blood through the liver is impeded, and as the veins from the stomach and intestines send all their blood to the portal vein, they are consequently kept in a state of congestion, and an oozing of blood often takes place from the mucous membrane of the stomach,

which, if in quantity, is vomited, but if small, is often passed off by the bowels, giving their contents a peculiar pitchy appearance; in some cases, however, the obstruction is thrown more on the subserous capillaries than on those of the mucous membrane, and thus ascites or effusion of the serum of the blood into the peritoneum occurs more frequently from this disease than the effusion of blood into the stomach.

In all these cases, when the vessels of the stomach are kept in a state of passive congestion from any impediment in the liver, heart, or lungs, the nutrition of the mucous membrane is less active than in health; the secretion of the gastric juice is diminished, and consequently digestion is slower and more feeble, so that if indigestible food, or more than the stomach can digest, is taken, some of it remains undigested, irritates, and finally inflames the mucous membrane; the same effects take place from spirituous liquors or cordials, which are often resorted to by way of giving tone to the stomach in these cases. In the treatment of this condition always remember that the congestion is secondary, and will be relieved by lessening the impediment to the circulation on which it depends; but both food and physic must be regulated with reference to it. The diet should be spare, easily digestible, given at regular periods, and consist of solid rather than fluid substances; as broth, jellies, and such like, distend the stomach, and are more difficult of digestion than plain roast or boiled meat. Abstinence from fermented drinks is also advisable in such cases, if the patient's habits and nervous

system can bear it; but if these rules are not attended to, the congestion of the stomach will be increased, and certainly terminate in an inflammatory condition of the mucous membrane.

Chronic gastritis is a frequent and very important form of disease, as it is not only often confounded with that mere functional derangement termed dyspepsia, but is often the result of the treatment for that affection. It may supervene on either acute or sub-acute gastritis, or simulate a chronic form from the commencement; but in most cases it is the result of a neglected sub-acute attack, aggravated by errors of diet, especially in persons of intemperate habits. Patients seldom die of this disease; but we have occasional opportunities of inspecting the stomach when they die of some other affection with which it co-existed. The mucous membrane is then found of a dark grey, or slate colour, owing to the action of the gastric acids on the blood, which, under habitual congestion, or slow inflammation, is detained in the vessels of the affected part; the mucous secretion is often much increased in quantity, and changed in quality, being sometimes transparent, or ropy and viscid. The membrane itself may be indurated and thickened, or be pulpy, softened, and often thinner than natural. These various conditions are not necessarily a proof of actual inflammation, but rather indicate that a previous inflammation had existed.

The mucous membrane of the stomach often presents a very uneven surface, especially at the pyloric region, and about the great curvature, and offers, for a space of greater or less extent,

elevations of a rounded or oblong figure, and from two to three lines in diameter, bearing some resemblance to the granulations on the surface of a healing ulcer, but not so prominent. This state is termed mamillated or *l'etat mamelonné*, and is generally considered as the result of inflammatory hypertrophy by Andral, Louis, Rokitansky and others; but Kolliker says it may occur in the healthy stomach; and Handfield Jones, one of the latest writers on the subject, considers that it is an "atrophic condition, the diseased part being thinned, not thickened; and that it is the shrinking in of this part which leaves the more healthy prominent, and forming mamillations." I believe there are two forms of this mamillation, one morbid, the result of a thickened and chronic inflamed mucous membrane; the other, occurring in a healthy condition, and caused either by great contraction of the muscular coat, or by contraction of the fibro-cells which Kolliker has shewn to exist in the layer of mucous tissue, analogous to the corium of the skin. This state is certainly not necessarily connected with inflammation, for a similar appearance is produced by any cause which excites increased secretion in the stomach, as in those who die of malignant cholera, or of yellow fever—diseases in which there is an abundant secretion from the mucous membrane of the stomach; and this state has also been found as a consequence of retained secretion in healthy persons who have been killed when fasting; in all these cases the mamillated condition may be obliterated, and the membrane be at once rendered smooth and even by pressing out the fluid between the fin-

gers. Dr. Budd considers that it depends on actual thickening of the mucous membrane at the projecting spots, and this appearance is most common in those parts of the stomach where the mucous membrane is thickest, and furnishes the most viscid mucus; so that it is chiefly met with about the pyloric orifice, and lesser curvature; but in the larger end of the stomach, where the mucous membrane is thinner, and its secretion more liquid, it is less frequently seen. We sometimes find a patch of variable size in the mucous membrane of the stomach, of a dull clear white aspect, which condition has been considered by Andral as the effect of chronic inflammation; for he states that he has always found it combined with other alterations, such as thickening and induration of the membrane. Handfield Jones considers it to depend on fatty degeneration of the epithelium of the tubes, and that it is akin to, and sometimes concurrent with, the fatty change in the liver. We may also include under the head of chronic gastritis, that condition termed by Rokitansky catarrhal inflammation of the stomach (or gastritis mucosa), which is generally chronic, and often a consequence of congestive disease of the portal system; the mucous membrane, in the pyloric and middle portion of the stomach, is congested, often ecchymosed, has a swollen, œdematous appearance, and is covered with a thick tenacious layer of mucus, which Dr. Jones describes as composed of an "homogeneo-granular plasma, with free nuclei, and round or oval cells from the tubes, sometimes blood-globules, and imperfectly formed crystals of triple phos-

phate." This condition is often met with in disease of the heart, in pulmonary phthisis, in drunkards, in gourmands, and will help to explain the loss of appetite which these patients experience, as the effusion of this alkaline mucus must interfere seriously with the process of digestion, not merely by its rapid decomposition, thus acting as a ferment for the food, but also mechanically, and by diverting the gastric tubes from producing their proper digestive principle.

The *symptoms* of chronic gastritis in the early stage are often variable, obscure, and of such a character as to deceive the patient, for drowsiness and headache after meals may be the chief symptom, but in well marked cases there is acidity, flatulence, a sense of oppression and distention of the stomach after food, particularly of a solid kind, and there is often severe pain felt immediately on taking any kind of food, which may continue during the process of digestion or till vomiting takes place. Pain is very variable, both as to its seat and character; it is generally aggravated by warm drinks, and may be referred to the xiphoid cartilage, to the right or left hypochondrium, to the back, opposite the stomach, or even to the left shoulder; sometimes it is a dull heavy pain, or rather a sense of constriction at the epigastrium or behind the sternum, it may arise spontaneously, or only be caused by pressure, by the taking of food, or occur during the act of digestion. Some patients take a disgust to food, others dread it from the feeling of pain it excites.

There is seldom thirst except during digestion, and it is during this period that vomiting gene-

rally takes place of very sour, half-digested food, from which they experience great relief. In some cases, particularly in persons of intemperate habits, there occurs a profuse discharge of dark blood from the stomach, probably owing to a relaxed though congested state of the vessels. The tongue may be pale and flabby, coated with a white fur, or with thick viscid mucus, and indented with the teeth, or it may be smooth, glazed, and too clean, as if denuded of its epithelium, or it may be red and fissured, or covered with apthæ. The skin is often rough, dry, and subject to eruptions of urticaria, or papulæ, or scales. The circulation is tranquil, except during digestion, but there is often great emaciation. The urine may be high coloured and acid, with a copious deposit of lithates, or it may contain oxalate of lime, and then there is often frequent desire to void it; or it may be pale and alkaline, with a white deposit of phosphates, or an irridescent pellicle on its surface. The bowels are generally constipated, unless there be tubercular disease of the lungs (which is often found connected with it), when there is diarrhœa, and frequently an evening paroxysm of fever. The sympathetic disorders of the nervous system are numerous, evinced by headache, vertigo, muscæ volitantes, sleeplessness, irritability of temper, or despondency, apathy of mind and body, pains in the limbs, and hallucinations. They may suffer from dyspnœa, cough of a hard, resonant character, and even paroxysms of asthma, palpitations, pulsations in the epigastrium, with irregularity or intermissions in the pulse. Most of these symptoms, however, are met with in mere

dyspepsia, also in specific diseases of the stomach, so that a correct diagnosis is often exceedingly difficult.

Two circumstances are of great importance in making a diagnosis; first, the length of time the disease has lasted; secondly, the result of treatment, for, if the disease has lasted a considerable time, and been aggravated by the ordinary treatment of dyspepsia, the great probability is, that the symptoms are caused either by a chronic inflammation of the gastric mucous membrane, or depend on some specific disease.

Chronic gastritis may be distinguished from cancer in this, that the former mostly supervenes on, and complicates some other disease, or is caused by intemperance, and errors of diet; secondly, that there are frequent bilious vomitings; thirdly, that vomiting occurs soon after food has been taken; fourthly, there are often pain and tenderness at the epigastrium from the commencement of the illness; fifthly, there is always more or less of fever during digestion; sixthly, there is no vomiting of stuff like coffee-grounds; seventhly, no tumour can be detected; eighthly, there is not the peculiar aspect that the victims of malignant disease present.

The causes of chronic gastritis are various, it often occurs secondary to tubercular phthisis, to disease of the heart, or the liver, and is often the most prominent feature in Bright's disease of the kidney, but it is generally caused by intemperance in eating and drinking. You should be aware, however, that it may also be caused by an opposite condition, as has been shown by Mr. Malcolmson, in a letter addressed, in 1837, to Sir

Henry (now Lord) Hardinge, on the effects of solitary confinement, and a bread and water diet, on the health of prisoners in India. He says, "Many men, particularly those of indolent habits, endure a confinement of five or six weeks on bread and water without injury to their health, but in some instances a short period is *sufficient to cause a total loss of appetite, bread is hardly touched, and on other food being allowed, the patient is unable to eat or digest it*, there is constant uneasiness about the stomach, the liver is torpid, the bowels confined, or relaxed with slimy discharges; and the swollen red tongue indicates the existence of irritation of the mucous membrane of the digestive canal, the pulse becomes quick and feeble, while the clammy skin, vertigo, debility, headache, and sleeplessness show how much the constitution suffers from diminished nervous power; their convalesence is slow, and even the subsequent allowance of food, sufficient for the maintenance of health, often fails to restore him."

Chronic gastritis is generally a tedious disease, very liable to relapse, and though seldom fatal, "per se," yet it may cause death by inducing a state of general exhaustion, owing to the long-continued irritation of such an important organ, and its interference with the digestive and nutritive processes. Some authors consider that chronic gastritis may prove fatal by inducing the simple chronic ulcer, and so cause death by hæmorrhage or perforation, or that it may terminate in cancer; but I hope to convince you that they are wrong, neither of these diseases being a result of inflammation. It is certainly true, that a cancer may be excited in the stomach of a person predisposed

to the disease, by an attack of inflammation, as we see to occur in the breast after an injury, but there must always exist a predisposition in the constitution.

Before commencing the treatment of chronic gastritis, always make a careful examination of the region of the stomach itself, and at various times, both when the stomach is full and when it is empty; ascertain if there be any tenderness, or induration, or tumour, do not begin by ordering what are popularly termed stomach medicines, or be content with merely prescribing for symptoms. If there be tenderness in the epigastric region, commence by applying four or six leeches every second or third day, for three or four times, so as not to exhaust the patient's strength before you reduce the morbid action in his stomach; allow him but a small quantity of food, and that of the mildest description, consisting of farinaceous articles and milk, order abstinence from all stimulants, from hot tea and coffee, not to distend the stomach, nor to take any active exercise; you must follow up this by counter-irritation, either with croton oil, or a succession of small blisters, or with the tartar emetic ointment, mixed with mercurial ointment. Regulate the bowels by enemata, put him under a mild course of mercury, which will keep up the function of the liver as well as at the same time exercising its specific effects in altering capillary action, and by combining anodynes you will not only allay pain, but correct that morbid sensibility, which often appears to keep up inflammatory action; so give three grains of mercury with chalk, and one of ex-

tract of hyosciamus or of lactucarium every night till the gums become tender. If there be much pain, give one or two drops of dilute hydrocyanic acid, with three grains of bicarbonate of soda in an ounce of distilled water, three or four times a day, or small doses of morphia, or dress the blistered surface with it. Do not push the antiphlogistic treatment too far, as the symptoms may be kept up by a state the very opposite to that of inflammation, and capable of relief by nutritious food and the judicious use of stimuli, for remember that in all inflammations there is a point where antiphlogistic treatment should cease and stimulants come in; so after a certain time you may have recourse to tonic medicines, and commence with the vegetable tonics, as chiretta, quassia, gentian, and if they agree, then you may try bismuth, the preparations of iron, quinine, but watch their effects, and stop them if they cause pain or sickness. There is one medicine which is often of great use in allaying pain and morbid irritability of the stomach; I allude to the nitrate of silver, and it appears to be peculiarly advantageous in these cases in which the tongue is shining and smooth, as if the papillæ had been shaved off. Make your patients wear flannel, use the warm bath occasionally, and take moderate exercise; regulate the diet carefully for a considerable time, even after they consider themselves as cured. If they can afford it, send them to some of the mineral springs, Leamington or Buxton, in England, or Ems, Weisbaden, or Vichy, on the Continent

## LECTURE IV.

No. V.—*Catarrh of the Stomach; in Drunkards; Treatment.*

Dr. Budd, in his lectures on diseases of the stomach, has described another form of inflammation, which may be also included under the head of chronic, and in which coagulable lymph becomes effused into the cellular tissue under the mucous coat, which coagulable lymph, if not soon absorbed, hardens and contracts, forming a dense gristly tissue, binding the mucous membrane to the coats beneath. Inflammation causing this result frequently occurs at the margin of a chronic ulcer of the stomach, but it often exists also, especially in the neighbourhood of the pylorus, independently of ulceration, or any other permanent change of texture in the mucous membrane. In such cases, the lymph is generally effused pretty evenly about the pylorus and leads to the formation of a gristly ring or band, which, by its contraction, permanently narrows the orifice. He states that this form of disease seldom occurs till near the age of forty, and is almost invariably the result of intemperance in drunkards; in these cases, the pyloric orifice becomes gradually narrower, and the action of the muscular fibres near this part is impeded, so that the stomach seldom empties itself completely, and the acid residue of digestion in it ferments, causing heartburn, sour eructations, flatulence, and vomiting. The stomach continues to grow larger, and as its

capacity augments, the vomiting may become less frequent, though a greater quantity is thrown up at a time, and eventually the disease destroys life by impeding the passage of food into the intestine. This disease has been mistaken for carcinoma, as it produces similar symptoms to those of cancer of the pylorus, but is distinguished from it by its slow progress, by the absence of hæmorrhage, which frequently occurs in cancer, by there not being any perceptible tumour, and by its not having a tendency to disseminate itself and infect neighbouring parts. In the early stage of this disease our treatment should be directed to reduce inflammation, and promote the absorption of effused lymph, leeching, the cautious administration of mercury, followed by iodide of potassium, and counter-irritation will promote those objects, but the proper regulation of diet, and the giving up of intemperate habits, is of the greatest importance towards insuring a complete recovery.

Under the head of chronic gastritis, we may consider an affection of the stomach which has been denominated gastrorrhœa, and is characterized by the copious vomiting of a clear, glairy fluid, usually insipid, resembling in appearance the uncoagulated white of eggs, or simple mucus; the discharge occurs most frequently in the morning fasting, but may take place at any time, and it is a curious fact, that this fluid is often thrown up after meals, without a simultaneous discharge of food from the stomach. Andral has recorded the case of a woman who vomited every day about four pints of this glairy fluid, and yet, never discharged either food or drink;

on dissection there was a general thickened state of the mucous membrane of the stomach, which was of a brownish colour, and the follicles were remarkably developed. This condition appears to depend on a catarrhal state of the stomach, and though it may occur under the same influences as ordinary catarrh of the bronchial mucous membrane or conjunctivitis, yet it is more frequently observed as a consequence of congestive disease of the portal system. The mucous membrane becomes congested, presents a swollen, œdematous, or granular appearance, and is covered with a thick tenacious layer of mucus, which is sometimes found to be alkaline in its reaction, is with difficulty washed off by water, and consists of mucus-corpuscles, nuclei, and epithelium; Dr. Jones considers this fluid to be analogous to the secretion of mucus which takes place in ordinary catarrh; but I think that it is chiefly connected with a disordered condition of the mucous follicles, which relieve themselves by a copious exudation of mucus; it is a troublesome form of disease, but seldom fatal, unless in old persons, when the pyloric region is the part found to be chiefly affected. The chief symptoms complained of are, a total want of appetite, a sense of weight and distention in the epigastric region after taking the smallest quantity of food, pain between the shoulders, occasional vomiting, constipation, the tongue is coated with a thick layer of white mucus, there is a constant bad taste in the mouth, the patients suffer from acrid flatulent eructations, cold feet, and a languid circulation.

This disease is often met with in drunkards,

and is then generally associated with the disturbance of the nervous system, induced by hard living, and characterized by sleeplessness, or sleep disturbed by uneasy dreams, a wretched feeling of exhaustion in the morning, and a tremulous state of the hands and tongue. Similar symptoms may, however, occur in persons of temperate habits; but whose nervous systems are exhausted by mental anxiety, want of sleep, or deficiency of food, as these influences will cause hallucinations, tremor of the hands and tongue, total loss of appetite, and vomiting, just as much as the intemperate use of spirits. This affection is also common among the women of large towns, who are overworked, badly fed, and often addicted to intemperance.

In the treatment of this disease, you must first remove the exciting cause, make them renounce intemperate or irregular habits, adopt a regular and nutritious diet, take every morning, fasting, a small tumbler of cold water, or tepid, if it is more agreeable, and follow that, after about half an hour, with an ounce of infusion of gentian, quassia, chiretta, or columbo, which may be taken with a drachm of tincture of the same two or three times a day, a short time before meals. As there is generally much bilious congestion, with constipation and flatulence, give five grains of inspissated ox-gall, with three of extract of rhubarb, and three of compound galbanum pill at night. Opium is one of the most efficient remedies in this disease, as the appetite generally returns when the nervous system has been refreshed by sleep; so the best way to give it is in a full dose at night. I have used the tinctura

cannabis indicæ, combined with aromatic spirit of ammonia, in one case, with benefit, where it not only corrected the irritability of the stomach, but also allayed the wretched sinking sensation which the drunkard suffered from when deprived of his habitual stimulus. In all these cases you must make them take solid nourishing food, for no medicines can have any good and permanent effect till the stomach is able to digest solid food. Dr. Osborne, in his "Propositions on Diseases of the Stomach," published in the *Dublin Medical Journal*, makes some good observations on the diet and medicines suited to these diseases. He advises, "when meats are taken, they should be such as are most free from osmazome, as chickens, rabbits, sheep's trotters, &c., and should always be accompanied by boiled rice or other vegetable matter, in order to diminish the stimulating effect;" he also recommends the use of yolk of eggs, and cites a case of vomiting from a congested state of the stomach in the last stage of diseased mitral valve, in which great relief followed its use. He lays great stress on "dilution of the contents of the stomach," as he considers that the mucus is dissolved, and so renders the membrane accessible to astringent remedies; and he thus explains the efficacy of mineral waters in irritability and chronic inflammation of the stomach, as when an invalid at one of the spas drinks six or eight beakers of water before breakfast, and walks in the intervals, he washes out the mucus, and then the small proportion of salts held in solution acts on the membrane as sedative and astringent.

He advises that the patient should drink a tumbler of tepid water on an empty stomach, and use a little gentle exercise before taking his medicine, which ought to consist of astringents in sedative doses, such as the acetate of lead in solution, in doses of one or two grains, three times a day, to which may be added acetate of morphia if there be excessive secretion of sour fluid. Sulphate of zinc is useful in very chronic cases, also the mineral acids, and my friend, Dr. Hudson, tells me that he has used sulphate of alum in doses of ten grains with much success. The flower of mustard, simply mixed in with water, applied on a cloth to the epigastrium, and suffered to remain on till smarting is produced, is a powerful adjuvant, interferes with no other remedy, requires no dressing except dry lint or wadding, and may be used every evening on going to bed. Nitrate of bismuth is a medicine which is very efficacious when the stomach secretes an unhealthy mucus, or when there is an excessive or un timely secretion of gastric juice, which is often met with in connexion with tubercular disease of the lungs, and also in infants when vomiting with exhausting diarrhœa results from the irritation of teething, or the use of improper food, or from the change of diet on weaning, the "weaning brash" of some writers, which is in many cases a gastro-enteritis. Bismuth appears to exercise a peculiar action on the mucous membrane with which it is brought in contact, restrains undue secretion, and has a sedative influence on the stomach, both by its direct action on the mucous membrane, as well as by modifying the exces-

sive secretion of irritating fluids. The best way to give it is in water, lime-water, or milk, a short time before meals. Three, five, or ten grains, three times a day, is quite sufficient. It appears to soothe the mucous membrane over which it passes, and has little effect on the general system, except indirectly from the action it exerts on the stomach. It may, however, be advantageously combined with other medicines, which tend to assist its action, as prussic acid, opium, magnesia, or chalk. I have found its combination with dilute hydrocyanic acid of great use in allaying the morbid irritability of the stomach, which occasionally complicates acute inflammatory affections of the chest, and renders the convalescence tedious and dangerous. These patients sometimes suffer from constant nausea, great thirst for cold drinks, and vomiting, not only of food and drink, but also of quantities of very sour fluid, which often exceeds in amount the proportion of fluids actually swallowed. In such cases I am in the habit of prescribing a scruple of bismuth with twelve drops of dilute hydrocyanic acid, in six or eight ounces of either water, lime-water if there be diarrhœa, or in the solution of magnesia if the bowels are confined. Of this mixture an ounce, three or four times a day, will generally allay all the distressing symptoms, and improve the appetite and digestion.

## LECTURE V.

*Diseases of the Glands in the Stomach; Fatty Degeneration; Hypertrophy; Ulceration; Treatment.*

Particular attention has been paid by Dr. Handfield Jones to the microscopic appearances of diseased conditions of the stomach, especially with reference to morbid alterations of its solitary lenticular glands and follicles. These glands are often difficult to demonstrate in the healthy adult stomach, but are generally easily seen in those of infants and children, in some cases being very numerous, so as to cover the anterior surface of the stomach. Andral says it is rare to find them in the stomach, but quotes from M. Billard the case of a child ten months old, in which the mucous surface of the stomach was dotted over with a number of white granulations the size of a millet seed, and similar ones were found in the intestines. Kölliker is of opinion, that a diseased condition of the mucous membrane has much to do with their formation, but Dr. H. Jones says "they are demonstrated most easily by immersing the mucous membrane (after it is dissected off) in dilute acetic or muriatic acid, when they appear as dead white, opaque, round, or linear bodies, about the size of a pin's head, lying in the deeper part of the mucous membrane."* The most frequent abnormal condition of these glands is an apparent increase, and we

* On the Stomach, p. 22.

may find them disseminated, not only over the stomach, but over both the small and large intestines. This increase in their number is not necessarily connected with inflammation, and I believe is more apparent than real, these glands not being really increased in number, but only made more evident by being distended. It was probably an increased development or morbid alteration of these glands which gave the peculiar appearance of groups of spots on the stomach of Mr. Cooke, who was lately supposed to have been poisoned by strychnia at Rugeley, and with which appearance the medical man who made the examination of the body was evidently not familiar.* In Dr. Hodgkin's lectures he states "that in the stomach of a dog poisoned with *oxalic acid*, he observed numerous opaque white spots, which he considered to be follicles preternaturally conspicuous amidst the surrounding altered mucous membrane."†

These follicles are, however, generally easily seen under a low magnifying power, and appear to constitute a great part of the mucous membrane itself; they open into minute pits on its surface, and in the normal state are full of secreting cells. In *fatty degeneration or atrophy* of the mucous membrane, they are filled with highly refracting particles of fat, but are destitute of secreting cells. These changes have been noticed by Dr. Habershon,‡ who describes the symptoms to consist "in great prostration and ex-

* *Vide Lancet*, December 22, 1855.

† Morbid anatomy of serous and mucous membrane, vol. ii. p. 319.

‡ Guy's Hospital Reports, 3rd Series. Vol. 1.

haustion, with complete loss of appetite, a clean tongue, no pain, or thirst, or vomiting, but inability to take food." They have been observed in phthisis, struma, exhausting suppuration, often associated with fatty liver, and though probably secondary to these conditions, yet they occasion much distress, and are often the immediate cause of death. Dr. Habershon suggests, that the large sympathetic ganglia of the abdomen are principally concerned in the production of fatty degeneration of the follicles of the stomach, and hence its association with other degenerative changes. Some well marked exmples of *hypertrophy* of these *solitary* glands have been recorded by Dr. H. Jones, who considers "that their structure is of the nature of an interstitial growth, inducing atrophy of the proper elements of the tissue," and that "though it does not associate itself especially with any other morbid change, yet it resembles those diseases known as encroaching on the natural tissue by fibroid interstitial formation, and which occur in an unperceived latent manner, being often first recognized by secondary results. Cirrhosis of the liver, stenosis of the cardiac orifices, Corrigan's pulmonary cirrhosis, are typical instances of this kind;"* and Bright's disease is, in his opinion, also of the same family. He considers that there is no necessary connexion between this change and inflammation, and recommends the bichloride of mercury, with or without bark, internally; with this cod liver oil may be conjoined, and also baths of the Kreuznach waters, as they have been used

* Loc. cit. p. 100.

with success in analogous conditions of the uterus, by Dr. Preiger.

Dr. Osborne, in his propositions,* states, that "sour eructations, and vomiting of sour fluid, with a sense of distention in the stomach after eating, are indicative of irritation of the gastric glands," and advises six or eight drops of the tincture of opium to be taken half an hour before meals, as it "first produces its sedative action on the irritable glands, and then being subjected to the digestive process along with the food, appears to be deprived of its narcotic power before it passes into the intestines.† These glands are also subject to ulceration, constituting the "gastritis folliculosa" of Cruveilhier, or the "hemorrhagic erosion" of Rokitansky, who describes them "as round or roundish spots of the size of a pin's head or a pea, or narrow elongated streaks, at which the mucous membrane appears dark red, soft, bleeding, and presenting a depression in consequence of loss of substance or slight erosion." A red, dirty brown, or soot black coagulum is generally fixed in each depression, and this must be removed before the nature of the disease becomes evident. These ulcers vary greatly in number and size; the whole of the stomach, with the exception of the fundus, may be studded with them, and marked with red or brown spots, according to the colour of the coagula. They may occur at every period of life, are not infrequent in children, and even in infants, of which Billard gives a very good illustration, and are

* Dublin Medical Journal, Oct. 7, p. 416.
† Loc. cit. p. 430.

found chiefly at the pyloric portion. They may occur as an idiopathic affection, but are more frequently consequent on some acute or chronic disease, especially if the patient has been a drunkard, and are generally marked by hæmorrhage, which may be so slight as merely to streak the gastric mucus, or may amount to a considerable quantity (often resembling coffee-grounds), which consists of blood, acted on by the acid secretions of the stomach. In these cases there is usually a catarrhal state of the mucous membrane of the stomach, the appetite and digestion are impaired, there is often a thin white fur on the tongue, and a diffused soreness over the epigastric region, particularly after solid food, which is often rejected. These superficial ulcers, if neglected, or aggravated by intemperance, may become deep, but if properly treated they will heal, and the stomach be restored to its usual condition. Apply a few leeches to the epigastrium, and follow them up by counter-irritation; allow only mild drinks, such as milk, water, or ice, taken in small quantities at a time; but above all regulate the food, which ought to be restricted to farinaceous substances, and even when the diet is improved, it should be given so as not to irritate the stomach, but if pain persists, or vomiting continues to be excited by food, you must then give from a quarter to half a grain of nitrate of silver in pills, combined with powdered opium. If the bowels are costive, use enemata, or prescribe aloes, or the compound colocynth pill, which acts chiefly on the large intestines. It is a curious fact, recorded by Dr. Budd, that Mr. Simon, of London, has caused bleeding ulcers,

"resembling the linear hemorrhagic erosions of the human stomach," in the stomach of cats, by keeping them confined for three weeks in a dark place, but with a fair allowance of their usual food; so that we may infer these ulcerations were the result of enfeebling agencies, acting on the general system, and through it on the stomach. It is well to be aware of these facts, for, as Dr. Budd observes, "it is possible that confinement, with insufficient light, and other conditions unfavourable to nutrition, might have the same result in man."

## LECTURE V.

### *Aphthous Ulceration of the Stomach; Simple, Chronic, or Perforating Ulcer.*

Ulceration of the mucous coat of the stomach is most frequently met with from the action of corrosive poisons, but it also occurs (though seldom) as a result of idiopathic inflammation, acute and chronic. In the simplest cases, when the mucous membrane exhibits a degree of vascularity indicative of inflammation, we find small superficial ulcers or spots of abrasion, similar to what we term aphthous ulceration when occurring on the tongue or fauces, and which Dr. Beaumont, of America (in his Observations on the case of St. Martin, who had a fistulous opening in his stomach), states, were often visible after a debauch; this condition was indicated by slight gastric disturbance, fever, thirst for cold drinks, enlargement of the papillæ at the base of the tongue, and increased mucous secretion. These ulcers are not confined to any particular part of the stomach, but are most frequently seen near the centre. Although apparently a very slight lesion, yet they sometimes cause very serious derangements of the stomach, and of the general health. In cases of long standing, cicatrization appears to have followed the process of ulceration, and hence we sometimes find an irregular puckered surface, similar to the appearance on the throat after extensive ulceration. The treatment for the acute stage of this affection chiefly consists in the removal of all

sources of irritation from the stomach; the food should at first be farinaceous, given in small quantities, and made with water in case milk disagrees, as it often turns to curd in the stomach, and is vomited; if there be pain, apply a few leeches to the epigastrium, give mucilaginous or cold drinks in small quantities at a time, and order one ounce of lime water to be taken with an equal or double the quantity of milk three or four times a day; if there be irritability of the stomach, give one or two drops of dilute hydrocyanic acid, with three or four grains of bicarbonate of soda three times a day, or a sixth or quarter of a grain of morphia; apply small blisters to the epigastrium successively—let them heal, and reapply them, or keep up a mild counter-irritation by croton oil rubbed over the surface.

There is, however, a particular form of ulceration which attacks the stomach, is peculiar to it, and the upper transverse portion of the duodenum, and deserves especial notice from its nature and seat, as well as from its insidious character, and the serious and rapidly fatal effects to which it often gives rise. It has been termed by Cruveilhier the "simple chronic ulcer" of the stomach, which name indicates its freedom from any malignant tendency, its curability, its slow course, and its ulcerative character; while Rokitansky has termed it "the perforating gastric ulcer," from its tendency to perforate the coats of this viscus. It is often confounded with cancer, with gastrodynia, and with chronic gastritis; but I hope to be able to prove to you that it is a perfectly distinct disease, capable of

being recognized as such during life, and presenting certain anatomical peculiarities quite sufficient to characterize it.

This form of ulcer is almost always situated in or near the lesser curvature of the stomach, between the cardiac and pyloric extremities, but nearer the latter, and more frequently on the posterior than the anterior surface. Rokitansky states, that "In the majority of cases there is only a single ulcer, but frequently there are two or three, occasionally four or five, and these are then commonly placed above, or near to one another at the posterior surface of the stomach, or at the lesser curvature."

These ulcers vary greatly in dimension; they are seldom smaller than a fourpence, or larger than half a crown, but may much exceed that size, as in a case recorded by Dr. Law,* in which "the long axis of the ulcer crossed the long axis of the stomach, and measured six inches in this direction, while its transverse diameter measured three inches." Their shape is generally circular, as if the piece had been punched out; but as they extend they often assume an elliptical form, and even become very irregular. If they extend in the transverse diameter of the stomach they cause alteration in its shape, their cicatrization being often followed by considerable deformities, or by annular strictures of this viscus.

These ulcers spread chiefly on the surface, but at the same time extend in depth, destroying the various coats of the stomach in succession, the mucous coat being removed to a greater ex-

* Dublin Hosp. Gazette, vol. ii. p. 51.

tent than the muscular, and this again than the peritoneal, so as to present various degrees. "In the first degree, the ulceration is limited to the mucous membrane, and often appears like a simple follicular erosion; in the second degree, the fibrous coat is destroyed, and the bottom of the ulcer is formed by the muscular coat; in the third degree, it also is removed, and there only remains the peritoneal coat, which is destroyed in a fourth degree, but is usually replaced by some of the neighbouring viscera with which it had contracted intimate adhesion."* If no adhesion has taken place, and the peritoneum be perforated, "the perforation will take place in the centre of the circle, by a process of sloughing, offering a valuable analogy to sloughing of the lungs."†

In this case the opening, seen from without, is much smaller than the corresponding ulcer of the mucous membrane viewed from within. In most of the cases I have seen there was no appearance of inflammation, but the margin of the aperture was sometimes slightly reddened, though all the rest of the stomach appeared healthy. In some cases there is thickening of the parts surrounding the ulcer, and this condition has sometimes caused it to be confounded with cancer, but a careful examination of the part will, in most cases, prevent our making this mistake. Dr. Brinton states, that "the exudation which causes this increase of thickness is almost exclusively confined to the mucous membrane, and to the areolar tissues immediately beneath it, and appears to con-

* Cruveilhier. † Rokitansky.

sist of fibres, in which it is usually very difficult to find even moderate quantities of the cell growth from which such fibres appear to be developed. Hence the new substance has neither the structure nor the situation of the cancerous deposit. The mucous membrane itself, however thickened, is merely hypertrophied, and is found, on miscroscopic examination, to be healthy in structure.

A strong argument in favour of these ulcers not being cancerous is derived from their curability, and this is proved by our finding them occasionally cicatrized in persons who have died of some other disease. These cicatrices are generally formed by a layer of fibrous tissue of new formation, and more or less thickness which covers the loss of substance, the mucous membrane forming a dense border round it, but does not contribute to its formation. If the loss of substance has been considerable, we find a circular depression corresponding to the size of the ulcer, and bounded by this ridge, but if the ulceration has been of small extent, the cicatrix presents only a very small corrugated depression, or it may be linear if the ulceration has extended to the fibrous coat. A very remarkable and important character of these cicatrices is, their great tendency to become the seat of consecutive ulceration, which serves to explain the great liability to relapse in this disease, and to subsequent perforation of the walls of the stomach, or to hæmorrhage. Cruveilhier asserts, that these consecutive perforations are more frequent than primary ones, and that perforation occurs much more frequently in simple ulcer,

than in cancerous ulcer of the stomach. When perforation takes place, the peritoneal opening generally occupies the centre of the circle, and appears small, circular, and thinned off to a sharp edge. Rokitansky says that it is caused by a process of sloughing; when the serous membrane gives way the contents of the stomach pass freely into the peritoneal cavity, and fatal peritonitis results. In most cases, however, the opening is fortunately prevented from communicating with the general cavity of the peritoneum by adhesions uniting it to some of the adjoining viscera; but the efficiency of this adhesion, as a means of protection against perforation, varies with its situation, and also with its structure. Dr. H. Jones states "that the most dangerous situation for an ulcer to occupy is the lower half or two-thirds of the anterior surface of the stomach, as, in case of perforation, there is no organ to which it can easily become adherent."* In two fatal cases which occurred in my own practice, and which I recorded in the *Dublin Quarterly Journal* for August, 1850, and also in a case brought before the Pathological Society by Mr. Hamilton, the perforation was blocked up by the under surface of the liver, which for some time had prevented the escape of the contents of the stomach into the peritoneal cavity. In a remarkable case, recorded in the Report of the London Pathological Society, 1847-48, p. 252, the barrier opposed to the extension of an ulcer of the stomach by the liver proved insufficient, as the destructive pro-

* Pathological Anatomy, p. 505.

cess continued until it perforated the diaphragm, and caused hepatization and a gangrenous cavity in the lower lobe of the left lung; in other cases it has opened into the duodenum, but more frequently into the transverse arch of the colon.

At a meeting of the Pathological Society, Dr. Banks exhibited a specimen of simple ulcer, which opened into an abscess of the spleen; and Cruveilhier records a case of a large ulcer on the anterior wall of the stomach, which had destroyed it, had become attached to the abdominal wall, and eroded the posterior surface of the xiphoid cartilage, so that if the patient had survived much longer, there would have resulted a gastro-cutaneous fistula. When perforation occurs on the posterior surface of the stomach, adhesions (the result of repeated circumscribed inflammatory attacks) generally form between it and the pancreas, or the adjoining lymphatic glands, forming, as it were, a plug, and so preventing extravasation into the peritoneum. As the ulcer is most frequently seated on the posterior surface of the stomach, the pancreas is, from its situation, the organ by which fatal perforation is most frequently prevented. The symptoms which indicate these partial adhesive inflammations of the peritoneum are, an aggravation of pain and epigastric tenderness, accompanied with a certain degree of fever and vomiting. Dr. Brinton, in an "Original Communication" on "Ulcer of the Stomach," in the *British and Foreign Review* for January, 1856, states that, after a careful analysis of a great many cases taken from the various journals, British and foreign, as well as from his own practice, he has

ascertained "that perforation takes place in 15½ per cent. of these ulcers, and that though the liability to the ulcer increases with age, yet the tendency to perforation diminishes." In the female particularly, the excess of cases of perforation falls on the sixteen years of life which intervene between the ages of fourteen and thirty; so that many persons have connected its occurrence with derangement of the menstrual function; but this view cannot be maintained as the ulcer occurs not only in males, but also in those females who have menstruated regularly. The ages at which it has occurred are also against this view; thus I have shewn a case of it (in a man æt. 65) at the Pathological Society, and it has been seen in a girl of eight, and a boy of nine years of age. With regard to the situation of this form of ulcer, though the posterior surface of the stomach is the part most frequently its seat, yet the anterior surface is the most frequent site of perforation; and it is a curious fact, that if there be a double ulcer, one on the anterior, and a similar one on the posterior surface, in contact with each other, there is less tendency to perforation, than if only one were present. The shape of the stomach itself is frequently altered, particularly when the pylorus is implicated, as occurred in a remarkable case communicated to the Surgical Society of Ireland by Mr. Adams,* in which the stomach was four times the natural size, so as to nearly conceal the intestines, and an irregular globular-shaped cavity, or newly formed antrum of the

* Dublin Quarterly Journal of Medical Science, vol. xi.

stomach was formed in the immediate vicinity of its pyloric end, which was transformed into a round globular mass or tumour, adherent to the head of the pancreas, and to the under surface of the right lobe of the liver.

## LECTURE VI.

*Simple Chronic Ulcer; Pathological Characters; Symptoms; Hæmorrhage.*

When this perforating ulcer of the stomach occurs in young females, it is often characterized by a peculiar want of inflammatory reaction, there being no deposit of lymph round it internally, nor any tendency externally to adhesion of the stomach with the adjacent organs, so that it is thus deprived of the usual protection against fatal perforation. This was well exemplified in a case lately recorded by Dr. Banks,* of a young woman who died in nine hours from the first symptoms, when dissection revealed one of these ulcers which had perforated the anterior wall of the stomach, "but there were no traces of lymph, or other products of inflammation." The increase of liability to perforation in these cases is so great, that Dr. Brinton estimates "that a gastric ulcer in a female between fifteen and twenty years of age, is from seven to ten times more likely to cause death by perforating the coats of the stomach than it would be if she were forty years old;" but it is a curious fact, that "this greater liability to perforation in early life is so exactly compensated for by a diminished risk of this event after that period, that the total risk of the two sexes, during the whole of life, remains nearly equal."† In some

* Dublin Hospital Gazette, May 15, 1856.
† Loc. citat. p. 170.

cases emphysema has been observed after death, quite independent of putrefaction; it occurred in the case recorded by Mr. Adams, also in one of Cruveilhier's cases, and Dr. Banks states, that, in his case, "it was found that the air had passed from the stomach to the diaphragm, separating the serous from the muscular layer, and thence extending along the psoas muscle, it reached the bifurcation of the aorta, followed the course of the external iliac artery and vein, and thence with the femoral vessels reaching the thigh."

The symptoms of chronic ulcer of the stomach are very variable, in some cases being so slight as not to excite any suspicion of the disease, while in others they assume the most aggravated form of dyspepsia; but in general they bear a resemblance to those of cancer of the stomach. These patients are most at ease when the stomach is empty; their appetite is capricious, often morbid, and digestion bad, they are irritable, depressed, melancholy, and complain of a dull pain, or a sense of uneasiness about the epigastrium. The most characteristic and constant symptom, however, is a circumscribed pain in the stomach, generally referred to a spot behind the ensiform cartilage, mostly caused by taking food, and continuing for three or four hours till it has passed into the duodenum; when the pain generally subsides gradually, but may cease suddenly, though only to be renewed by the next meal; there is often, also, a slight degree of tenderness or soreness over the epigastrium. They often complain of pain in the corresponding portion of the vertebral column,

and it may be even more severe here than anteriorly; the pain in these two points is increased by pressure, and often alternates between them; in some cases it appears to traverse from before backwards, in other cases it radiates along the œsophagus, or in the direction of the intercostal spaces. There is occasional eructation of a sour fluid or gas, and now and then vomiting of food; but they are generally able to pursue their avocations and take food up to an advanced period. In some persons the disease causes very little constitutional disturbance; there is no fever, no thirst, the tongue is moist and clean, presenting no deviation from the healthy condition; the appetite is not affected, and there may be no emaciation unless the ulcer be large, or involves the pancreas, when it interferes directly with nutrition. Most of the cases, however, present a peculiar pallid, waxy appearance, and when occurring in young females, though they may be plump yet they are anemic, and thus afford evidence of a cachectic condition, and of a depraved or morbid condition of the blood. As the case progresses, however, the pain generally becomes more severe and constant, especially after taking anything solid, or even after the mildest kind of food; but it is not necessarily attended with the acidity which is so remarkable in many cases of mere functional disorder, and is generally relieved by vomiting. Dr. Osborne, of this city, is of opinion, that the diagnosis of the presence and situation of these ulcers can be made by observing the effect produced by the position of the patient in either

causing or relieving this pain. He says,* "When he lies so as to bring the fluids of the stomach in contact with the ulcer, then the pain is perceived; but when he lies so as to keep it above the fluid, then he enjoys comparative ease, and, in general, in all such cases, there is a great remission of pain as long as the patient remains in the erect posture, owing to the great majority of these ulcers being situated either on, or in the neighbourhood of the lesser curvatures." I do not feel competent to pronounce an opinion on this means of diagnosis in the early stage of this disease; but I can state from my own observation that this rule does not apply to all cases after perforation has occurred, for in the first case which I met with, and published,† the pain was relieved by the patient lying on her abdomen, though the ulcer was seated on the anterior surface of the stomach; and in a very remarkable case, reported by Dr. Hughes,‡ in which the patient recovered from the first attack, but died in another, four months subsequently, the patient, on both occasions (after the symptoms of perforation had occurred), was found lying on her stomach, though the ulcerations were discovered on the anterior surface of the organ. This is a point in the diagnosis well worth attending to, as a knowledge of it may prevent us from mistaking an attack of perforation for simple colic, a mistake committed by myself in the first

* Dublin Journal of Medical Science, First Series, vol. xxix., p. 361.

† Dublin Quarterly Journal of Medical Science, No. xix., p. 16.

‡ Guy's Hospital Reports, vol iv. 1846.

case which occurred in my own practice, and which has also been made by others. I believe the most frequent and characteristic sign of simple chronic ulcer of the stomach is hæmorrhage, or vomiting of blood; this may occur at different stages of the disease, being often the first sign that awakens our suspicion, or it may not occur till a very advanced period; and will thus present different appearances, according to the progress of the ulcer, and the source from whence it proceeds. There is, generally, some amount of blood poured out during the course of the disease, for if we examine the surface of one of these ulcers (and the best way to do so is under a stratum of clear water) we will find a number of minute vessels divided—some plugged up by adherent coagula, others by soft clots easily detached, and from these a small quantity of blood is often poured out. This form of hæmorrhage often ceases spontaneously by coagulation of blood in the vessels of the part, but may continue for some time oozing forth, and mingling with the contents of the stomach, thus giving a dark appearance to the matter vomited, in some cases resembling the so-called coffee-grounds vomiting, which is so often met with in cancer of the stomach, and which is merely the effect of the chemical action of the acids of the stomach on the colouring matter of the blood, when effused into its cavity. In other cases the blood, though effused into the stomach, is not vomited, either because the quantity is small, or that it is poured out very slowly, or that the stomach is not sufficiently irritable, and under these circumstances the blood passes into the intestines,

and is expelled with their contents, after having undergone the usual chemical changes which it experiences, when exposed to the action of the acids and gases in its passage through the alimentary canal, so that these dark tarry evacuations are characteristic of blood coming from some part of the gastro-intestinal system, and if the patient has previously suffered from symptoms of disease of the stomach, we may conclude that the source of the hæmorrhage was seated there. In these cases the patient gradually becomes weak and listless, complains of tendency to diarrhœa, the discharges from the bowels are very dark, often like tar, there is no tenderness of the belly or fever, but there are frequent griping or colicky pains, relieved by an evacuation. In most cases, however, the blood is effused in large quantity into the stomach, and provokes vomiting. The patient complains of a sense of weight or uneasiness at the epigastrium, vertigo, with a feeling of nausea, often fainting, and this is followed by vomiting of very dark blood in clots, when the bleeding ceases; but they soon complain of griping pains in the belly, and pass a copious black evacuation. The bleeding may recur in a few hours, or days, or may not for years, but is very apt to recur, when it has once happened, and though often profuse yet is seldom immediately fatal. Death, however, frequently occurs after some time, as the patient sinks into a state of anæmia from the repeated vomiting of blood, and discharges of dark evacuations by the bowels.

Cruveilhier has divided hæmorrhages from chronic ulcer of the stomach into three degrees,

slight, moderate, and copious; the first and second form are of frequent occurrence, and proceed from erosion of the small vessels on the surface of the ulcer, when there is usually but a small quantity of blood poured out, but the third form is caused by the ulcer opening into a large artery, when, if there be not an obstructive clot of sufficient solidity to control the hæmorrhage, there is profuse vomiting of fluid arterial blood, sometimes followed by sudden death; and he states that he has seen a case where the patient died of hæmorrhage from an ulcer of the stomach, without having vomited a drop of blood, or passed any from the bowels, and yet, on examination, the stomach was found distended by an enormous mass of coagulated blood, as also were the intestines. He also states that "the most frequent source of these serious hæmorrhages, particularly of the profuse form, is perforation of the splenic artery, as it winds along the upper border of the pancreas, and from its flexuous course offers a great many points of contact." The coronary artery of the stomach, and "even the gastro-epiploic arteries have also been the source of fatal hæmorrhage, but these last-named vessels are seldom attacked, as this form of ulcer is rarely met with in the great curvature of this viscus." Hæmorrhage may also proceed from the small vessels in the substance of the liver, spleen, or pancreas, which have been attached by the ulcerative process having perforated the stomach, and penetrated into these viscera, consequent on adhesions having formed between them; but the bleeding to which their breach of continuity gives rise is generally mo-

derate in quantity, and when vomited usually presents the appearance of coffee-grounds. In fact, the appearance of the blood vomited varies with the quantity effused, the rate at which it is poured out, and its source; in these cases, when it proceeds from a large vessel, it is copious, fluid, and presents the appearance of arterial blood, while, in other cases, the contents of the stomach are merely tinged with blood, or have a dark-coloured appearance.

It is now well established that profuse and fatal hæmatemesis occurs much more frequently in simple chronic ulcer of the stomach, than in cancer of this viscus. Cruveilhier accounts for it by stating that the yellow elastic tissue of the arteries, which, by its low degree of vitality, often escapes other organic lesions, cannot resist this peculiar destructive process, termed by Hunter ulcerative inflammation, which does not respect any tissue, so that we sometimes meet with a simple ulcer of the stomach quite cicatrized, except in the part which corresponds to an artery, "and as the solution of continuity in a blood vessel can only be healed by a solid obliteration—if the obliteration is merely caused by a loose coagulum—it may be detached, and profuse hæmorrhage will result. He also is of opinion that the two great accidents (perforation and hæmorrhage) which are liable to occur during the course of "simple chronic ulcer" of the stomach, take place more frequently secondarily, that is, by ulceration of the cicatrix, than primarily, or during the formation of the ulcer. A knowledge of these facts should make us very cautious in our prognosis as to the ultimate recovery of

patients, who we are of opinion have once suffered from this disease, and we should warn them, or their friends, that they are liable to a recurrence of their symptoms, from any exciting cause, and particularly caution them against distending their stomach with solid food, liquids, or gaseous drinks, and also to avoid making any violent or sudden exertion.

## LECTURE VII.

*Simple Chronic Ulcer of the Stomach; Symptoms; Diagnosis.*

Vomiting is also a symptom of simple ulcer of the stomach, but by no means a necessary or constant one. In the case recorded by Mr. Adams the matter vomited amounted to "several gallons during the day;" and what deserved especial attention was, that it far exceeded the quantity drank by the patient. Mr. Adams accounts for this curious fact by supposing that "the mucous membrane of the stomach, and its glands, are the source of much of the fluid exhaled during these attacks of vomiting." When it occurs as a result of ulceration, you will generally be able to detect streaks of blood in the matter vomited at some time or other, and this is of great importance in making a diagnosis, as blood is seldom found in them, except in cases of ulcer. Constipation of the bowels is often another very distressing symptom, causing much anxiety to the physician, as the patient thinks that purgatives will relieve his symptoms, and yet often objects to enemata, which are always the safest and surest means of keeping the bowels free.

Amenorrhœa is another symptom almost always complained of in these cases, when occurring in young females, but I believe it to be a result, not a cause of the ulcer, and I quite agree with Dr. Brinton that "the suspension of this peculiar hæmorrhage is a result of the same

law as that which often gives rise to its intermission in the earlier stages of phthisis and other constitutional disorders." It is an important fact, and well worth bearing in mind, that there are often long intervals of perfect freedom from all these symptoms, and even from hæmorrhage, so that the patient and physician may be lulled into security, and think that a cure has been effected; this is generally owing to cicatrization of the ulcer, which we know may take place in some cases, but ulceration often attacks the cicatrix, and then all the symptoms and accidents of the original disease may be reproduced. In fact, the tissue of the cicatrix, though perfect and strong, yet ulcerates, and is destroyed much easier than the mucous membrane of the stomach, which, though delicate in appearance, yet is more capable of resistance in virtue of its greater vitality. From a careful consideration of the cases that have occurred within my own observation, and those recorded by others, I must say that the *positive diagnosis* of this disease, particularly in the early stages, is still very difficult. Dr. Abercombie states* that "it may run its course, almost to the last period, without vomiting, and with scarcely any symptom, except the uneasiness produced by eating, and which subsides entirely a few hours after a meal." Dr. Seymour, of London, who has paid much attention to this disease, and has been physician to St. George's Hospital for eighteen years, says†—"The chronic ulcer of the stomach is not to be

* On Diseases of the Stomach, p. 17.

† On Severe Diseases of the Human Body, vol. i. p. 17.

distinguished by any known signs, unless vomiting of blood, which has followed long-continued symptoms of pain and distress in the stomach, has taken place." Dr. Copland*—"The symptoms of ulceration of the stomach are very equivocal;" and Dr. Budd, one of the latest authors on this subject, writes†—"Early in the disease the symptoms are few and equivocal. Pain and soreness at the epigastrium felt after meals, occasional severe eructations, and occasional vomiting, which are often the only symptoms then present, may result from various other causes, and even from mere functional disorder." There have been exhibited at the meetings of the Dublin Pathological Society many and various specimens of this disease corroborative of these statements. One occurred in a person of high literary attainments, but who died insane at the age of 36. He had been under my care for some months previously to his death, suffering from flatulence; his appetite was very great, but he gradually became emaciated, and died from exhaustion, though taking plenty of nourishment up to the last day of his life. I found a large chronic ulcer in the lesser curvature of the stomach, near the pylorus, which had quite destroyed the mucous and muscular coats, and laid bare the peritoneum. Another case occurred in the practice of Dr. Shannon, who kindly permitted me to exhibit it to the Society. A man, aged 60, was under his care for hydrocele, when he was suddenly seized with severe

* Dict. Pract. Med., part xvi. p. 919.
† On the Stomach, p. 132.

pain in the belly, followed by rapid collapse, and death in nine hours from the first seizure. He had never made any complaint of his stomach, yet, on examination, a large chronic ulcer was found, which had perforated its coats, and caused general acute peritonitis. No evidence of cancer could be detected in the stomach, or in any of the viscera.

Professor Smith exhibited to the Pathological Society a specimen and cast of a large chronic ulcer of the stomach, that had perforated that organ, and was plugged up by the pancreas, which formed the floor of the ulcer. The patient, a female, had neither vomiting, thirst, epigastric tenderness, nor any symptom of stomach disease, but was much emaciated,* though her appetite continued good up to her death.

In these cases the only indication of disease of the stomach was emaciation; but in another case, which I brought before the Society, the patient, though anæmic, was plump and not at all emaciated. She was a servant maid, aged 19, who had been taken suddenly ill about an hour previous to my seeing her. I found her just recovering from a state of collapse; her face was deadly pale, covered with cold perspiration, and expressive of great anxiety; she kept both her hands pressed firmly on the epigastrium, where she complained of severe burning pain; she made frequent efforts to vomit; and her extremities were cold. On trying to remove her hands she cried piteously, saying, "I shall die

* Dublin Quarterly Journal of Medical Science, New Series, vol. i. p. 234.

if you take away my hands." On examining the abdomen, the parietes felt tense and knotty, as if the muscles were spasmodically contracted; she kept her knees drawn up, and the least touch or motion caused her to scream. Her pulse was small and quick. I was told she had eaten a good dinner of meat and potatoes at two o'clock on that day; she took her tea at seven, and immediately after complained of a stinging pain in her stomach, but walked up from the kitchen to the nursery, at the top of a lofty house, and immediately after she was attacked with violent pain in the stomach, uttered a piercing scream, grasped a woman who was sitting beside her, and fainted; on recovering from the faint she vomited up her dinner, mixed with a dark-coloured substance, which, however, was thrown out previously to my arrival. On carefully considering all these circumstances, I came to the conclusion that it was a case of perforation of the stomach, and, therefore, directed that she should be kept perfectly quiet, not allowed any drink, and to have a grain of opium every hour. The next morning she had completely recovered from the state of collapse, and presented the usual symptoms of a person labouring under severe idiopathic peritonitis; her tongue was dry, pulse small and quick, skin hot, abdomen tympanitic; the attempts to vomit still continuing; urine scanty, high-coloured, and turbid. She lay on her right side, with her legs drawn up; and her breathing was hurried, short, and thoracic. Sir Philip Crampton now saw her with me, and it was resolved to apply a few leeches and combine mercury with the opium.

All pain and anxiety soon subsided, she enjoyed a state of comparative ease, and on the fourth day appeared to be doing very well; her pulse, which had ranged from 120 to 140, now fell to 92; and she expressed a conviction that she should recover, although previously certain that she should die.

It was now agreed to suspend the use of opium for a time, as she appeared to be slightly narcotized, and as her bowels had not been opened since the attack. She was at this time left alone for a few moments, when, feeling a desire to evacuate the bowels, she got up to the night chair, and passed a quantity of a dark grumous substance. She then returned to bed, but was immediately attacked with violent pain in the abdomen; the efforts to vomit returned, the pulse increased in frequency, and, notwithstanding the most assiduous treatment, the disease progressed, and the patient died in great suffering on the fifth day afterwards—nine days from the first attack.

Dr. Aquilla Smith and Dr. Frazer assisted me in the *post mortem* examination. On opening the abdomen we found evidence of intense and general peritonitis, the intestines greatly distended with gas, highly vascular, and covered with lymph; in several places deposits of purulent matter resembling abscesses. The left lobe of the liver was adherent to the stomach, and on separating them, a perforation the size of a sixpence came into view; it was circular, seated on the anterior surface of the lesser curvature of the stomach, near the cardiac orifice; the edges were smooth and rounded; the mucous mem-

brane removed to a greater extent than the serous; a clot of blood closed the aperture; the stomach, viewed from within, looked as if a piece had been punched out of it, but there was no morbid appearance round the ulcer, nor any trace of disease on the mucous membrane, except that it had a soft, pulpy aspect. No extravasation of blood, or of the contents of the stomach, had taken place into the cavity of the peritoneum. The uterus was remarkably small, but there was no disease observable in it or in any other of the viscera.

This case presents many points of interest, and especially with regard to the diagnosis: I at first felt undecided as to the real nature of the disease, whether it was mere hysterical colic, or whether the symptoms were caused by perforation. I had attended this girl some time previously for constitutional derangement with suspension of the menstrual discharge; she then suffered from great debility, loss of appetite, cough, with a constant sensation of tightness and soreness along the sternum, yet *she never complained of pain in the stomach*, but said that she always felt stuffed up after any food, even the smallest quantity, and that she often thought that what she did take did not reach her stomach, but stopped at a point opposite the lower third of the sternum. She had a very pallid, waxy appearance, and a loud venous murmur could be heard in the jugular veins. In support of the view of this seizure being hysterical, were the previous state of the constitution, the opinion of the ladies of the house, who all felt assured that it was an hysterical attack, but,

above all, the fact that *deep* and *firm* pressure over the epigastrium gave relief to the pain, for she kept both her own and the nurse's hands pressed strongly over this part, screaming when I attempted to remove them. But, on the other hand, the previous state of her constitution might predispose her to ulceration of the stomach, as many are of opinion that the condition of the system which induces disordered menstruation also predisposes to this disease, and have hence termed it a menstrual ulcer; but the rapidity and violence of the attack, the fainting and subsequent vomiting of the dark-coloured substance, and the state of the abdominal muscles, made me come to the conclusion that it was a case of perforation of the stomach, and the primary effect of the treatment, together with the *post mortem* examination, proves that I was correct in this view.

An interesting feature in this case, also, was her complete recovery from the state of collapse, a circumstance I believe of very rare occurrence in perforation of the stomach; and another very important fact was the apparent remission of all the bad symptoms on the fourth day. This apparent remission, which at the time induced us to suspend the use of the opium, proves the necessity and wisdom of the advice given by Louis, in his work on gastro-enteritis, when, in speaking of peritonitis from perforation of the intestines, occurring in the course of typhoid fever, he mentions a case where the patient lived for seven days from the first evidence of peritonitis, and in which the symptoms, though very severe at first, subsided on the fourth day, and such an

apparent improvement took place, that doubts would have been entertained of the correctness of the diagnosis, but that the fatal termination proved it to be true. "In confirming," says Louis,* "those diagnostic symptoms which we have established, this observation is of great importance as connected with prognosis, since it shows that when once the signs of perforation have occurred we must not depart from our diagnosis, even after an arrest of symptoms, and an apparent amelioration of even several days standing."

In the case I have detailed, the examination of the body showed that there was nothing to prevent recovery taking place, if sufficient time had been allowed for firm adhesions to have formed, as none of the contents of the stomach were effused into the peritoneum, and this would also, in my opinion, be sufficient to explain what has appeared a difficulty to some writers on this subject, even to Louis himself—namely, "why the power of resisting the same causes of death is so variable in individuals, under apparently analogous circumstances?" The true explanation appears to me to be this, that the peritonitis is not caused so much by the mere perforation of the stomach or intestines, as by the escape of foreign substances into the peritoneal cavity. Thus, in this case, the length of time she survived, viz., 288 hours from the first attack, can be accounted for by the perforation not having taken place for some hours after dinner, and no solid foreign substances having passed into the cavity of the peritoneum, for we could not detect any on the examination.

* Recherches de Gastro-Enterite.

## LECTURE VIII.

*Simple Chronic Ulcer of the Stomach; Differential Diagnosis; Perforation.*

The differential diagnosis of simple chronic ulcer of the stomach is often very difficult. If pain be the most prominent symptom, the diagnosis will lie between simple ulcer and that temporary nervous affection, termed gastrodynia, which usually depends on mere functional derangement, and is quite independent of any organic disease; but the character of the pain will often guide us in our diagnosis, for, if it should come on suddenly, and be irregular in its time of attack—not only felt when the stomach is empty, but being relieved by solid food, and, if it be curable by antispasmodics, by bismuth, or by opium, the great probability is, that it is merely an attack of gastrodynia. In some instances the pain of ulcer imitates that of ordinary dyspepsia, coming on at uncertain times after taking food. In other cases the pain is continuous during the intervals of meals, and may last days or even weeks without any intermission, or it may even occur on an empty stomach, and be relieved by the ingestion of food; but as a general rule it is excited or increased by food or drink of a high temperature, or by moving about after meals. Chronic gastritis is very liable to be mistaken for ulcer, unless there be a discharge of blood from the stomach or bowels to assist in the diagnosis; but if neither of these have occurred, we must be

guided chiefly by the appearance of the patient, the history of the case, and the general symptoms.

That peculiar constitutional affection, termed chlorosis, so often met with in young unmarried females (a class of persons very liable to these ulcers of the stomach), may be confounded with this disease, as most chlorotic females suffer more or less from some form of irritation in the stomach or bowels; but in chlorosis the patient presents a peculiar greenish hue, different from the pallid appearance of one suffering from ulcer of the stomach; the least exertion causes dyspnœa; there is a venous murmur heard in the veins of the neck, and often a soft bellows-murmur accompanying the first sound of the heart, with occasionally some œdema of the lower extremities. The pain which often precedes the menstrual crisis may cause some doubt in the diagnosis, but this is generally accompanied by pains in the loins and all over the abdomen, and is not preceded by nausea or vomiting, nor increased by taking food, and it generally ceases on the re-establishment of the menstrual discharge.

The difficulty in the diagnosis of these cases is often increased by the occurrence of vomiting of blood, which in chlorosis may be vicarious of the catamenia, but if so, we will find that the hæmorrhage usually occurs at the monthly period—that the menstrual discharge is suppressed or has been irregular, and, if no ulcer of the stomach exist, that the vomiting of blood has not been preceded nor followed by long continuance of pain in the stomach. The differential

diagnosis between simple ulcer and cancer of the stomach sometimes presents much difficulty, particularly in persons about the middle period of life, as if the cancer occupies the centre of the stomach, and does not cause obstruction to either orifice, the symptoms of indigestion are very similar in both cases; each may present the appearance of malignant disease, the straw-colour, the "jaune pale" of cancer, and both may be affected with vomiting of blood; but in cancer this seldom occurs till a late period, is not often profuse,* and generally presents that appearance termed "coffee-ground vomit." The length of time the disease lasts, and the perfect remission of all symptoms which often take place during the course of simple ulcer, will also help to distinguish it; for cancer always interferes greatly with nutrition, causing progressive deterioration of health, and after some time extreme wasting, as it steadily advances to a fatal termination; but in simple ulcer, emaciation is not a necessary consequence, and there will be intervals of health for months, and even for years. The occurrence of pain will often be of great assistance in the diagnosis between simple ulcer and cancer, for it is an important and curious fact, that there is seldom pain in cancer of the stomach, unless great obstruction of the pyloric orifice prevents the passage of food out of this viscus; in these cases there is often severe pain,

* Dr. Budd lays great stress on the fact, that "in persons under thirty, the only organic disease of the stomach that gives rise to profuse hæmorrhage, with very few exceptions, is ulcer."

which is caused by spasmodic contraction of the stomach trying to overcome the obstacle, analogous to the contractions of the bladder, in a case of retention of urine, and quite different from the pain in simple ulcer, so that in a case presenting symptoms of organic disease of the stomach, the mere fact of severe pain constantly occurring after food should lead you to diagnose simple ulcer of the stomach rather than cancer. The pain, moreover, in simple ulcer, is often of a gnawing character, causing a sense of sickening depression; it is variable and remittent, sometimes being very severe and then ceasing for days or even weeks; but in malignant disease of the stomach the pain, though not often severe or lancinating, yet is almost always constant after it has once commenced. The dorsal pain, though occurring sometimes in cancer of the stomach, is much more constant and characteristic in simple ulcer, it generally comes on at a later period than the epigastric pain, and is also described as a gnawing pain, ranging from the spine of the eighth or ninth dorsal to that of the first or second lumbar vertebra, and is often "interscapular" as well as "rachidian."

Cruveilhier and Budd appear to lay great stress on the detection of a tumour in the epigastrium as a diagnostic character of cancer; but that this may also be found in simple ulcer has been proved by Mr. Adams, who "detected the existence of a small tumour in the right hypochondriac region," "which was found, after death, to be formed by the thickened parietes of the pyloric portion of the stomach, along with some enlarged lymphatic glands, and the head of the

pancreas,"* though there was not a trace of cancerous deposit in any part of the body.

We may also be aided in our diagnosis by observing the times at which vomiting (if it be present) occurs, as cancer is generally seated either at the pylorus or cardia, and so obstructs the food entering, or passing out of the stomach; and the microscopical appearances of the matter vomited may also throw light on the subject. Cruveilhier† states that the effect of treatment, and particularly of diet, is the true "pierre de touche," in doubtful cases, for the diagnosis between simple ulcer of the stomach and cancer; as in the latter disease dietetics are but of little use, while in the case of simple ulcer they are most important, and if the diet be suited to the stomach the patient immediately is conscious of it, and becomes sanguine of recovery. The age of the patient is also an important element in the diagnosis, as cancer is a disease which seldom occurs before the age of 35 or 40; but simple ulcer, though chiefly a disease of the young or adults, yet is met with sufficiently often in elderly persons to cause a difficulty in the diagnosis; but if, with the symptoms of organic disease of the stomach, there has been profuse hæmorrhage at an early period; if there is but little emaciation; if there is severe pain felt in the stomach after food, and yet no evidence of obstruction to the food entering or passing out of this viscus; if no tumour can be detected in the epigastric region, or evidence

* Loc. cit. p. 490.

† Archives Générales de Med., Avril, 1856.

of cancer in any other part of the system; if the symptoms have existed for any length of time, with occasional perfect remissions; and if the patient is readily benefited by a very mild system of diet,—the great probability is, that the disease is simple chronic ulcer. There is, however, I believe, no certain pathognomonic symptom which will enable us to distinguish between the two diseases with precision in the early periods, but their natural termination differs essentially, as while cancer of the stomach has an inevitable tendency towards a fatal termination, the simple ulcer frequently tends to cicatrization and cure. Perforation may occur in both diseases, but is much more frequent in simple ulcer than in cancer: when it takes place the symptoms are generally very striking, the person is seized with sudden violent pain at the epigastrium, which becomes rapidly diffused over the abdomen, attended with great tympanitic distention,* exquisite tenderness, collapse, great anxiety of countenance, and often vomiting, in fact, all the symptoms† of an advanced stage of fatal peritonitis, and death generally results in from twenty to thirty hours, the intellect in most cases continuing perfect to the last. In

* This distention of the peritoneal cavity is supposed, by Dr. Hughes, to account for the absence of "frottement," or friction vibration sounds in traumatic peritonitis, as the parietal and visceral layers of this cavity are separated by the air effused.—Dub. Hosp. Gazette, Feb. 1, 1856.

† Frequent desire to micturate has been stated by some writers to be a constant symptom in cases of perforation of the stomach, but I have not found it to be so, though it generally is the case in perforation of the intestine.

these cases the diagnosis of perforation is not difficult, as they are characterized by *the sudden supervention of the symptoms of peritonitis, with rapid sinking of the vital powers*, for, from the suddenness of the attack, there is not sufficient time for the formation of adhesions to circumscribe the extravasated contents of the stomach, and on examining the body after death, we find evidence of severe acute peritonitis, effusion of serous fluid, often of a milky, whey-like appearance, the intestines and viscera glued together with coagulable lymph, in some parts forming pouches containing purulent fluid, like abscesses, and the contents of the stomach extravasated into the peritoneal cavity. At first there is nothing apparent to account for all this mischief; but on separating the liver from the stomach, or turning this viscus over on its axis, we then discover an opening of an oval or rounded form, generally from half an inch to an inch in diameter, situated in or near the lesser curvature, between the cardia and pylorus, and more frequently on the anterior than on the posterior surface. The peritoneal opening is generally small, circular, and thinned off to a sharp edge, so that there is no appearance of laceration or ulceration. In other cases the diagnosis is more difficult when the diffusion of the contents of the stomach, and of the consequent peritonitis, is prevented by adhesions which have already taken place, and a circumscribed abscess in the sac of the peritoneum has resulted. Dr. Budd, in his work on the stomach, has alluded to cases of this kind, and Dr. Stokes exhibited a specimen at one of the meetings of the Pathological Society, in

which the perforation was only ascertained after death, though the patient was "under observation for fourteen days, suffering from symptoms referrible to the diaphragm, and to the left side, but with intermissions, during which his appetite was good, and his pulse feeble. On examination after death, a chronic ulcer was found in the lesser curvature of the stomach, which had perforated its coats, and opened into an abnormal sac of the peritoneum." Dr. Stokes states candidly, that the perforation was not diagnosed during life; "the symptoms, the intermissions, and the absence of general peritonitis, explained the cause of the deficient diagnosis."*

In some cases of perforation of the stomach, the patient may die in a few hours, before the inflammation has had time to set fully in, and simply from the shock which the nervous system has sustained, analogous to that of severe burns or other serious injuries; this was well exemplified in the following case recorded by Dr. Crisp:†—

"A girl, ætat. 15, tall and delicate, apparently in the enjoyment of good health, after giving a violent scream, became insensible. She was cold and pallid, the pupils were much dilated, and the pulse scarcely perceptible; there was vomiting of a glairy matter. *As the symptoms appeared to be those of compression*, and, as the pulse was small and feeble, Dr. Moore had given a stimulating and aperient clyster; by this

* Dublin Quarterly Journal of Medical Science, vol. ii. p. 504.

† Lancet, August 5, 1843.

treatment the system was slightly roused, and she was then bled; this blood was perfectly arterial in colour, and did not coagulate. Her hand was placed on the region of the stomach, and as this appeared to indicate distress in that viscus, a mustard poultice was applied. Dr. Clutterbuck saw the patient in the evening, and again prescribed venesection, which was performed, but without avail, for the next morning she expired. About thirty hours after death a very careful examination of the brain was made, but no traces of disease (with the exception of about a drachm of fluid in the ventricles) were found.

"In the stomach, about two inches from the cardiac orifice, there was an ulceration without elevation, penetrating through all the coats, and allowing of the escape of some fluid into the peritoneum, which was slightly rough, but in no other way injured by the contact. Inquiries were made respecting her health previous to the occurrence of the foregoing symptoms, and from what could be ascertained, it appeared that she had been cheerful and in good health, with the exception of a slight loss of appetite. She had menstruated six months previous for the first and only time."

In this case the chief symptoms were referred to the brain, but in another case of perforation of the stomach, recorded by Dr. Barlow,* the pleura and lungs were supposed by many to be the seat of the disease, and even the physical signs of pneumo-thorax were all present.

* A Manual of the Practice of Medicine, p. 422.

# LECTURE IX.

## *Simple Chronic Ulcer; Causes, Complications, Course, Termination.*

Our knowledge regarding the circumstances and special causes giving rise to this form of ulcer is still very defective. Cruveilhier and Rokitansky appear to consider irritation of the mucous membrane to be the chief cause; but the former admits that many affected with this disease have never made any complaint referrible to the stomach, and out of seventy-nine cases recorded by the latter, fory-six occurred in females, the sex least liable to irritation of this viscus; besides, the stomach in most of these cases presents no other traces of disease, nor would this theory explain why the ulcer should be so often single, or situated chiefly along the lesser curvature of the stomach. Dr. Budd considers that a state of anæmia predisposes to it, and this opinion would appear to be supported by the observation of Andral, who states that women who have been recently delivered, and persons who have undergone severe operations, are subject to it. It certainly is relatively more frequent amongst the poor than the rich, and privation, mental anxiety, and intemperance* have been considered as more or less immediate causes; but I think they are only entitled to be regarded as mere coincidences.

* The maximum frequency of the ulcer in Copenhagen occurs among the spirit-drinking population, according to Daklerup.

Dr. Brinton* states "that the influence of advancing age seems to be that which is most distinct and indisputable, and which rests on the broadest numerical basis of facts. It certainly hardly ever occurs before the age of puberty, but it is especially often found in young, unmarried females, dressmakers, and housemaids, who are much confined within doors; now menstrual irregularity is of so frequent occurrence in this class of persons, that Dr. Crisp and others have considered there was some intimate relation as of cause and effect between them, analogous to the "menstrual ulcer" described by Sir A. Cooper. Dr. Brinton, indeed, states that "this particular epoch predisposes, not so much to the occurrence of ulcer as to a peculiar character and termination of the ulcer; that it is a want of reaction, resulting in a tendency to perforation rather than a proneness to ulceration, which our numerical data would entitle us to assert." And Mr. Critchett† has observed a similar character in the ordinary cutaneous ulcer at the same period of life, associated, too, with an analogous cachexia, and an equal disturbance of the menstrual flux. Some have supposed these ulcers to be of a syphilitic nature from their peculiar specific characters, and some have identified them as cancerous; but I believe that this simple chronic ulcer is in no way connected with gastritis, syphilis, nor cancer, for whether we regard its symptoms, etiology, course, or anato-

* Brit. and For. Med. Chirurg. Review, July, 1856, p. 174.

† On Ulcers of the Lower Extremity, p. 107.

mical characters, I think we are justified in regarding it as a peculiar specific form of disease, of the precise cause, and of the early progress of which, we know but little.

It is important, however, to know, though it were merely to prevent a mistake in cadaveric diagnosis, that in some cases this ulcer may be found complicated with cancer, as occurred in the case of Napoleon, and as recorded by Dr. Abercrombie in his work "on the stomach," p. 30. But even in these cases it still retains its peculiar characters, so as to be distinguishable in the midst of the cancerous growth and devastation. It is also so frequently found associated with pulmonary tubercle, that some writers have considered that there exists some necessary connexion between them, for this disease is met with in twenty per cent. of the recorded cases of simple ulcer; but the significance of this proportion loses much of its value when we consider that the deaths by tubercular consumption, in persons of both sexes above the age of 20, amount to more than eighteen per cent. of the deaths from all other diseases.

Rokitansky states that several of the patients, whose bodies he examined, referred the origin of their gastric disease to intermittent fever; but Dr. Budd considers "that this ulcer has not been found in conjunction with, or in sequel to, any other disease, with such frequency as to lead us to conclude that it has any intimate connexion with it;" and Dr. Chambers, in his "Decennium Pathologicum," derived from St. George's Hospital, agrees with Dr. Budd in considering this ulcer of the stomach as an indepen-

dent disorder, and not a symptom or a consequence of other affections.

As regards the frequency of this disease, Dr. Brinton states, that "so far from its being a rare lesion, evidence of its present or previous existence may be found in from two to thirteen per cent. of persons dying from all diseases; and that the ulcer itself, open and unhealed, may be observed in from one to ten per cent."

The progress of this disease, and the length of time it may last, is very uncertain, for we can only suspect its existence from certain symptoms and signs, of which pain and hæmorrhage are the chief to be relied on, but even they may be absent. Dr. Budd states, that "in some cases the process of ulceration is rapid, and perforation occurs early, without having been preceded by any severe or alarming symptoms, and within a few weeks (it may be) of the formation of the ulcer." In most cases, however, their course is essentially chronic. Mr. Hamilton showed at the Pathological Society the stomach of a young woman, who had been under his care for five years, suffering from pain in the stomach, but who appeared to be in perfect health, when, after taking a hearty meal of apples and porter, she was suddenly attacked with violent pain in the stomach, which extended rapidly over the abdomen, and she died in twenty-four hours. The contents of the stomach were found in the peritoneum, mixed with lymph and turbid fluid; a large ulcer was discovered on the anterior surface of the lesser curvature of the stomach, near the cardiac orifice; it had formed adhesions to the under surface of the liver, but had

been ruptured by the over-distention of the stomach.

Cruveilhier states, that he has had cases under his observation for upwards of ten years, and Dr. Budd asserts, that "a simple ulcer may continue almost stationary, at any rate with little change in the symptoms, for twenty years."

The terminations of this disease are various; the most frequent are, 1st, perforation of the coats of the stomach inducing fatal peritonitis, and this may occur during any effort, straining at stool, vomiting, or even from the jolting of a car; it generally takes place soon after a meal, owing, I should think, chiefly to the distention of the stomach which then exists. In some cases death takes place rapidly, either from the sudden shock to the system, or, as in the case recorded by Dr. Adams, "by the inordinate extrication of gas from the mucous membrane of the stomach and intestinal canal; this air over-distended the parietes of the abdomen, and pushed up the diaphragm in such a manner that respiration could not be carried on," for the patient only lived an hour and a-half after the perforation. 2nd. Hæmorrhage, which may be, but seldom is, the immediate cause of death. In some cases, however, hæmorrhage and perforation may take place about the same time, as occurred in a case shown at the Pathological Society by Dr. Law, of a female æt. 60, who was suddenly attacked with profuse hæmatemesis and died in thirty-six hours. Two ulcers were found in the stomach; one had opened into the splenic artery, and thus caused the hæmorrhage; the other had opened into the cavity of the abdomen, and caused fatal peritonitis. 3rd. Ex-

haustion: this may be caused by dyspepsia and harassing cardialgia, or may be due to the frequent vomiting of food, or to the direct influence of the ulcer on the digestive powers of the stomach, particularly in cases where it has extended to the pancreas, and constituted it as its base, forming pancreatic fistulæ, thus interfering directly with nutrition, and producing gradual emaciation and death, or it may be owing to the formation of a circumscribed abscess in the sac of the peritoneum behind the ulcer, causing constant suffering, with loss of appetite and hectic fever, which eventually wears out the strength of the patient. 4th. Cicatrization may take place, and the patient recover either temporarily or permanently, as occurred in the case of Beclard. In these cases we have two evils to dread: first, the recurrence of the disease from any exciting cause; secondly, the rupture of the cicatrix by distention of the stomach with solid food, liquids, or flatus, or in making any exertion, so that a patient, who has once suffered from this disease, is never to be pronounced free from danger.

## LECTURE X.

*Simple Chronic Ulcer of the Stomach; Treatment—Dietetic, Medicinal.*

In the rational treatment of this disease, we should always keep in mind two great principles; first, not to irritate the stomach by unsuitable food or medicine; second, not to allow it to become distended with food or drink; in fact, we should treat this ulcer as we would a simple ulcer on the leg, or any other part of the body, keeping it at rest, and preventing it from being irritated; but this is seldom the case as regards the stomach, for it too often happens that, when a person complains of indigestion, bitters, tonics, and purgatives are ordered; he is advised to eat meat, to drink bitter beer or wine; but the more he eats or drinks the worse he gets, till either the treatment is changed, or the true nature of the case is made evident by a sudden attack of hæmorrhage, or by perforation. As we cannot keep the stomach perfectly at rest, we must only supply it with as little food as possible, and that of the least irritating kind. Cruveilhier, in a recent paper on this subject,* states that the great problem to resolve in the treatment of this disease, is to find an article of food which can be borne by the stomach without causing pain, and this being found, the cure is generally effected with facility. That in most cases a milk diet

* Archives Générales de Med., Avril, 1856.

is the only one which is suited to the instincts of the stomach, the milk often appearing to act as a specific. He has made some curious observations on the modifications in the instinct (as he terms it) of diseased stomachs, in their affinities and repulsions for certain articles of food. Thus, he states there are certain conditions of the mucous membrane of the stomach, in which this organ becomes *univorous*, and can only digest one class of aliments; sometimes it becomes exclusively *carnivorous*, at other times exclusively *herbivorous*, and it sometimes happens that, when *carnivorous*, it can only digest one kind of meat, when *herbivorous*, only one kind of vegetable. He also adds, the most frequent transformation in the instincts of the stomach is that by which it retrogrades to the state of infancy, when it becomes *lactivorous*,* and in this state is often very sensitive, at one time only tolerating very hot milk, at another very cold, at another time tepid; and he remarks that even the natural instincts of the stomach become changed; thus some persons who could not tolerate milk, when in a state of health, will live almost exclusively on it when suffering from this form of ulcer of the stomach; but, according as their natural state of health returns, their old instinct returns also, and they complain of its again disagreeing with them, causing indigestion and headach; but I think that this can be explained satisfactorily, when

* Milk contains the three classes of principles which are required for human food—the albuminous, oleaginous, and saccharine; and it is the only secreted fluid in which these all exist in any considerable amount.

we reflect that, in health, milk is taken into a stomach which has been digesting animal and vegetable food, and often saturated with fermented drinks, so that it coagulates in solid masses, which are digested with difficulty, but if the diet be restricted to milk, or the milk be intimately mixed with farinaceous substances before it is taken, the casein it contains coagulates in small flakes, which are exposed on every side to the action of the gastric juice, and, consequently, soon dissolve. The addition of a few grains of bicarbonate of soda, or equal parts of soda water, carrara water, or lime water, will often make the milk agree with the stomach, particularly when there is much tendency to acidity. Cruveilhier advises to commence the treatment with milk fresh from the cow, one or more spoonfuls every few hours, and increase the quantity according as the stomach bears it; he then adds farinaceous substances, particularly rice, which he regards as highly nutritious; but I think he is wrong in this, as rice is remarkable for the comparatively small proportion of gluten it contains, and, therefore, it cannot be as nutritious as well-baked wheaten bread, wholemeal bread, maccaroni, biscuit-powder, and other substances made of flour; oatmeal is also a very nutritious and wholesome food, as the meal of this grain is distinguished for its richness in gluten, and for containing more fatty matter than any other of our cereal grains. Arrow-root, tapioca, sago, are not very nutritious, as they consist chiefly of starch, with only a small and variable admixture of gluten, and, therefore, are not suited for a sole article of

diet, when the patient must be kept on a simple and single diet for a considerable time. An admixture of these substances, however, ought to be of use, if (as is stated)* "the gastric juice has comparatively little action on starch, which, consequently, taxes the stomach less—most probably passes out of it more quickly—and is certainly found, when the digestive power is suspended, to be less oppressive to this viscus." After some time a small quantity of good chicken broth, beef tea, the yolk of soft boiled eggs, or calves' foot jelly may be taken, and if these agree, you may then allow some white fish, and, finally, tender and easily digested flesh meat. If there is no flatulence, or irritability of stomach, you may allow, in small quantities, some soft, well-cooked vegetables, mashed potatoes, cauliflower, or turnips. Cruveilhier advises that the instinctive desires of the patient for food should be always attended to; thus, in some cases, he had found it useful to pass at once from a milk diet to animal food; and in one case of a lady, aged 68 (who was supposed by many practitioners to be affected with cancer of the stomach, as she had constant vomiting of a dark colour, dislike of every kind of food or drink, and was greatly emaciated), having ascertained that she was fond of oysters, he allowed her to commence by drinking the water of oysters, and after a few days to eat the oysters themselves. She recovered for the time, and died five years afterwards from simple perforation of the stomach. He is of opinion that

* Budd, loc. cit. p. 109.

medicines are but of secondary importance in the treatment of this disease, and recommends alkalies, particularly phosphate of lime, prepared by calcination, and very finely powdered; he also speaks highly of baths, simple, alkaline, or gelatinous, but prolonged for three or four hours at a time.

The second principle of treatment is, not to allow the stomach to become distended with food, liquid, or gas, so that our patients must be limited to the smallest possible quantity of food under which they can be comfortable; they should never be allowed to make a regular meal, but small quantities of food should be taken every two, three, or four hours, so as to prevent the sensation of hunger. We should also be careful not to allow any food which might give rise to the production of much gas during digestion. A little brandy, with cold water, is often a safe and agreeable drink. If there be a sense of heat in the epigastrium, or tenderness on pressure, apply three or four leeches, followed by a small blister, or counter-irritation with tartarised antimony, or croton oil.

Although medicines are of secondary importance to a well-regulated diet, yet we will often be able to alleviate troublesome symptoms by their use; if there are acid eructations, or sour vomitings, they will be relieved by five or ten grains of subnitrate of bismuth, given in water or milk, or in the solution of magnesia, two or three times a day, half an hour before meals. The bismuth diminishes morbid secretion, and also appears to exert a curative action on the surface of the ulcer; in some cases, magnesia

appears to act better when given about an hour after meals, as it neutralizes any excess of acid during digestion, and does not irritate the surface of the ulcer. If the stomach be irritable, give two drops of dilute hydrocyanic acid two or three times a day, have his milk iced, or let the patient swallow a piece of ice occasionally, particularly if heat of the stomach be complained of. If there be much pain, do not rely on opiates, as they often cause nausea and vomiting, and do not relieve pain in this disease as effectually as in other cases, but give bismuth combined with small doses of morphia and creasote. Nitrate of silver is also very useful in these cases; it reduces the morbid sensibility of the ulcer, and promotes its cicatrization; it may be continued safely for some time, and given freely. Dr. Aquilla Smith has given it in Sir P. Dun's Hospital, to the extent of a grain three times a day, continuously for six weeks, in cases which presented the usual symptoms of ulcer of the stomach; the patients improved under the treatment, and no discoloration of the skin resulted. Dr. Chambers asserts that astringents are often of signal benefit, particularly the newly discovered salts of metals, whose constitution and form are the same as alum, especially "iron alum." He states, that "three or four grains of this salt, taken thrice a day, give an immediate relief to the pain, and improve the anemic condition." If the bowels are confined, give an aloetic, or compound colocynth pill, as they irritate the stomach less than fluid purgatives; but castor oil, with or without a few drops of laudanum, will often agree well; enemata, however,

are the best and safest means of counteracting the constipation that is so often met with. When young unmarried females are the victims of this disease, chlorosis is generally present, attended with disordered digestion; for this state some preparation of iron will be necessary, so give two or three grains of the citrate of iron three times a day after meals, or one or two grains of the sulphate, either with or without quinine, or the saccharated carbonate of iron, or the compound iron mixture. These tonic medicines will promote the healing of the ulcer, by rendering the nutritive processes more active and healthy, and so improve the impoverished state of the blood. In fact, everything that tends to improve the constitution has an effect upon the healing of the ulcer, so that we should pay the greatest attention to the state of the general health, especially to the functions of the uterus and skin, for as the constitutional state (under which the ulcer first commenced) improves, so is the tendency to heal; and though the presence of the ulcer depends more immediately upon the pathological condition of the stomach, yet this is most frequently the result of general constitutional causes. If symptoms of fever should arise, attended with tenderness of the epigastrium, it is probably owing to spreading of the ulcer, or to inflammation of the peritoneum in its vicinity, and these symptoms often precede an attack of hæmorrhage or perforation; for this condition, perfect rest, abstinence from food, and the application of two or three leeches, will be necessary, and if there be much thirst, with flatulence and acidity, you

will often relieve them by giving ten grains of bicarbonate of potash, and three of nitre, in water, three or four times a day. If vomiting of blood should occur, place the patient in the recumbent posture, give turpentine in doses of twenty or thirty drops every hour in cold water, as recommended by the late Dr. Graves; Dr. Seymour expresses the greatest confidence in this remedy given in drachm doses. Acetate of lead, alum, gallic acid, and tannin, are also very useful in restraining hæmorrhage.

If symptoms of perforation take place, our treatment should be very decided. The indications are—1st. To confine the patient strictly to the horizontal position, and forbid any exertion or motion. 2nd. To keep the stomach as nearly empty as possible; no food or drink allowed except a spoonful of water, milk, beef tea, or other bland liquid occasionally, so as to allay the cravings of the stomach, while, at the same time, we support the system by injections of strong beef tea and gruel for the first fortnight. 3rd. To give opium freely, not only with the object of allaying the violent pain, which generally immediately follows the perforation, but in doses sufficiently large and frequently repeated to keep the system under its influence, so that by its sedative action on the gastro-intestinal organs, time may be afforded for adhesions to form, and effusion into the peritoneal cavity thus prevented; if administered in the form of enema it might be safer, and less likely to derange the action of the stomach. By pursuing this plan of treatment, at the same time confining the patient strictly to the horizontal

position, so as to prevent any exertion or motion, for the first ten or twelve days, we shall have a reasonable chance of recovery, provided the perforation has not occurred soon after a meal; for as patients have survived after presenting all the symptoms of peritonitis from perforation of the intestines, occurring even in the course of acute diseases, in which the constitution generally has suffered, and where morbid anatomy teaches us that several ulcers are usually present, we may, with much greater reason, hope that recovery should take place when, as is usually the case in perforation from ulcer of the stomach, we have only one ulcer to deal with, when the constitution has not suffered from the debilitating effects of any previous disease, and when, if the stomach has been empty at the time of the perforation, and can be kept so till adhesions have formed with some of the viscera, cicatrization may take place, and the processes of digestion and nutrition proceed as before.*

* For some important remarks on the administration of mercury in "acute traumatic peritonitis," the consequence of rupture of an intestine from *external violence*, consult a valuable paper by Dr. Hughes, in DUB. HOS. GAZ., February 15, 1856.

## LECTURE XI.

### *Simple Chronic Ulcer in its Medico-Legal Relations.*

Having discussed the positive and differential diagnosis of simple ulcer of the stomach, as well as the symptoms of perforation, I will briefly allude to this subject in its medico-legal relations, as suspicion of poison has occasionally arisen when a person, in apparent health, has died after a few hours' illness, from perforation of the stomach. Mr. Alfred Taylor, in an important paper* on this subject, states that "perforation from natural causes has, in more than one instance, been mistaken for perforation from poisoning," and he enumerates the following general characters, in which they resemble each other:—1. "The person attacked is commonly in apparent good health." 2. "The symptoms are, chiefly, violent pains in the abdomen, with or without vomiting." 3. "These symptoms are often suddenly developed soon after a meal." 4. "The case proves rapidly fatal, death generally taking place in from eighteen to thirty-six hours, which is about the period within which arsenic destroys life." He selected arsenic as the example, because it is so common a poison, and causes symptoms somewhat similar to those caused by disease; besides we could not well mistake perforation from disease for that caused by corrosive poisons. To form a diagnosis for me-

* Guy's Hospital Reports, vol. iv.

dico-legal purposes, Mr. Taylor advises that we should take into account the following circumstances:—

1. "Perforation of the stomach is comparatively frequent, as a result of disease, and is apt to attack a particular class of persons, namely, young females. Perforation is so rare an effect of arsenic, that, out of a vast number of accurate reports of death by this poison, there are not, so far as I am aware, more than three cases in which this morbid change has been observed; and only one of these occurred in Britain. This fell under the notice of that accurate observer, Dr. Christison."

2. "In perforation from disease, the symptoms may not occur until three or four hours after any substance has been swallowed. In arsenical poisoning, the symptoms commonly occur in about half an hour after the substance containing the poison has been taken."

3. "In perforation from disease, the pain in the abdomen occurs suddenly, and is of the most intense character. It is sometimes felt in the lower part; and at others, over the whole of that cavity. In arsenical poisoning, the pain comes on gradually, slowly increases in severity, is commonly described as of a burning kind, and is chiefly confined to the region of the stomach."

4. "In perforation from disease, vomiting, if it exists, is commonly slight; and it is chiefly confined to what is swallowed. There is no purging: the bowels are generally constipated. In arsenical poisoning, the vomiting is usually severe, and diarrhœa is seldom wanting."

5. "We must attach some value to the shortness of the period within which diseased perforations destroy life, from the time of the first appearance of the symptoms, as the stomach has not been found perforated in any instance in which arsenic has destroyed life within twenty-four hours."

6. "In perforation, peritonitis is generally the sole cause of death. In arsenical poisoning, the fatal result takes place under the peculiar symptoms produced by the poison."

7. "In diseased perforation, the mucous membrane of the stomach and small intestines is not commonly inflamed; but in Dr. Christison's case, the surface of the stomach was very vascular, marked in different places with dark-brown spots of various sizes, and here and there abraded. The intestines were internally very red."

8. "*Situation.*—In perforation from disease, the aperture is commonly placed in or near the lesser curvature; but arsenic may perforate the parietes in any part of the stomach. In Dr. Christison's case, the perforation was in the anterior wall; but as a general rule, perforations from poisons are found to occur in the basis or fundus of the stomach."

9. "*Size.*—No criterion exists on this ground. In the above case, the aperture was about the size of a pea—the size which is often found in perforation from disease. In regard to other characters, we may observe, that, in perforation from disease, the border is sometimes smooth, presenting no mark of erosion; it may be thickened; and the thickening extends occasionally, for some distance around, into the parietes of

the stomach, which are indurated. In the case of perforation by poison, already alluded to, the aperture had a dark, ragged margin."

10. "In perforation from disease, no poison will be discovered in the stomach or intestines, and in general, the absence of poison from a perforated stomach ought to be taken as a fair presumption against the origin of the perforation from poison."

"Lastly, let us suppose that the fatal symptoms first showed themselves within half an hour after a meal—a case in which there would be, *cæteris paribus*, the strongest ground to suspect irritant poisoning—we sometimes have it in our power to rebut this suspicion, by a very simple investigation. If others partook of this same meal in company with the deceased, without manifesting any symptoms of disturbance, it would go to disprove the fact of poisoning." Mr. Taylor concludes by stating, that "perforation of the stomach from disease cannot therefore be said to present any difficulty to the medical jurist, unless peritonitis follow. It is the rapid death, under symptoms of violent irritation, from a state of health, that excites suspicion."

There are two important facts worthy of notice, in a medico-legal point of view; first, that ulceration of the stomach may advance to perforation without a single symptom to indicate its presence. Dr. Abercrombie* has recorded the case of a "strong and healthy-looking servant girl, aged 21, who was suddenly seized with excruciating pain in the abdomen, sickness,

* Diseases of the Stomach, p. 37.

and vomiting, and died in eighteen hours from the attack. In the middle of the smaller curvature of the stomach there was a recent opening, the inner surface of which presented a deep excavation, with rounded and smooth edges;" "*this patient was never known to complain of her stomach, or to show the smallest deviation from robust health.*" Secondly, it has been ascertained that a person has walked for a quarter of a mile after being seized with the first alarming symptoms.*

In connexion with this subject, I think the following communication, which I have received from Dr. Geoghegan, Professor of Medical Jurisprudence to the Royal College of Surgeons, Ireland, will be read with interest:—

"*July* 10, 1856.

"My dear Sir,—In reply to your inquiries, I beg to observe that the simple or chronic ulcer of the stomach, when followed by perforation, does not, according to my experience, present any very substantial difficulties in medico-legal practice. It is true that the symptoms have a certain general resemblance to those of irritant poisoning, which, with the fact that they not unusually commence shortly after a meal, has often led to the suspicion of violent death. The real nature of the case, however, seems in general easily recognizable, even during life. Thus, the early period of the illness at which pain sets in with intensity (the obvious physical and

* My friend Dr. Croker King has published some important observations on this subject in the Dublin Hospital Gazette, November 1st, 1854.

other characters of the vomited matters meanwhile forbidding the idea of *corrosive* poisoning), together with the absence of any ulterior manifestations than those of shock and peritonitis, are generally distinctive. When to this are added the general conditions and history of the patient, the nature of the attack become sufficiently plain. Occasionally the *length of interval* between the last ingestion of food, drink, &c., and the access of formidable symptoms, is, in itself, nearly decisive. Accordingly, I found this latter criterion available in the instance of a gentleman who died of perforating ulcer of the duodenum. Should the case become the subject of medico-legal inquiry, the extreme definition of the ordinary anatomical characters, and the usual site of the ulcer, will, in general, clear up all doubt. The peculiar aspect of the margin, as if a piece had been 'punched' out of the coats, the absence of surrounding red areola, and commonly of induration, the want of signs of irritation in the mucous coat at large, are nearly conclusive to the practised eye. It deserves notice, however, that, in a few cases, the condition of the adjacent lining membrane may, at first glance, excite a suspicion of corrosive poisoning, presenting, as it does, patches of dark coloration. This, however, will be found, on closer inspection, to be merely a tract of finer vascular arborescence, acted on by the gastric acids. The comparative *rarity of ulcerative* perforation of the stomach as the result of poisoning, however important as an abstract proposition, can scarcely be considered a safe element of diagnosis, as regards the investiga-

tion of individual cases. It may be inferred from the above, that a chemical inquiry will seldom be requisite with a view of determining the origin of such ulcerations; when called for, however, the necessity of occasionally extending it from the stomach and its contents to other quarters (as the liver, &c.), should not be lost sight of. In some instances, especially where the illness has been of unusual duration, the poison, if any, may, by the operation of obvious causes, have been removed from the former, although discoverable elsewhere. It may be not improper, further, to observe, as related to the present subject, that, although *ulcerative* perforations (for the reasons assigned) do not usually cause material embarrassment, the diagnosis of those arising from digestive *solution* of a portion of the stomachic walls is not always free from difficulty. Thus, in some few instances, a previous uniformly vascular condition of the mucous membrane gives rise, under the *post mortem* influence of the digestive fluids, to appearances which strongly simulate those of poisoning by sulphuric or oxalic acid. A notable example of this kind presented itself in the judicial inspection of the body of a new-born infant, in which I was some time since engaged. As the history was wanting, a chemical inquiry became necessary, and effectually dispelled the presumption created by the character of the appearances.—I remain, very truly yours,

"T. G. GEOGHEGAN.

"*Dr. Lees,*

"*Physician to the Meath Hospital.*"

# LECTURE XII.

*Softening or "Digestive Solution" of the Coats of the Stomach from the Action of the Gastric Juice after Death. Morbid Softening.*

Before leaving the subject of simple perforations of the stomach, I wish to make a few observations on a peculiar condition of this viscus, termed "ramollissement" or softening, in which perforation also occurs, but whether as a morbid or a cadaveric process is still a disputed point among pathologists. Some regard it as the result of disease in the parietes of the stomach, analogous to softening in other organs, and consider that the aperture is formed during life: others, on the contrary, believe that it is a simple *post-mortem* change, resulting from the action of the gastric secretions on the coats of the stomach after death.

The stomachs in which this agency of the gastric juice is discernible show no marks of putrefaction: there is no extrication of gas, nothing of the fœtor of gangrene; but their interior always exhales a peculiar acid odour, and litmus applied to the softened spots turns red. The mucous membrane looks and feels pulpy, like paste, or is completely dissolved away. The pulp varies in colour from brown to gray, according to the quantity of blood contained in the part. The blood-vessels that ramify over the softened portion are rendered black, or brown, and therefore conspicuous, by the effect of the acid on their contained blood; or, if they

are empty, the surface is pale, and presents a uniform, semi-transparent, jelly-like aspect.

When perforation takes place, it is generally met with at the cardiac extremity of the stomach, occupying sometimes a large portion of the fundus. It is large and irregular: the edges are thin, ragged, commonly much softened for a considerable space around, and present that fringed appearance which the stomach might be conceived to acquire by the scraping of its parietes with a blunt knife.

The contents of the stomach are not always effused; and when they are, there is no evidence of peritoneal inflammation, nor any morbid change whatever, to indicate that the effusion had taken place during life. The absence of all marks of peritonitis seems to indicate, in the most positive manner, either that the perforation and extravasation occurred recently before, or at some period after death. The viscera opposite the perforated spot, whether the spleen, liver, or diaphragm, are commonly found softened, and in a dissolved state; having almost the impress of having been acted on by some fluid which has escaped from the stomach.

The lower third of the œsophagus is also liable to be affected, particularly the left side, and perforations take place here through the diaphragm, causing effusion into the left cavity of the pleura; in some cases these appearances have been mistaken for the effects of inflammation or of poison; but the peculiar character of the softening, its never being distinctly circumscribed, but shading off into the surrounding parts, the peculiar acid smell, and strong acid

reaction, and the characters of the openings into the peritoneum are generally sufficient to prevent a mistake.

John Hunter first announced that this form of softening and perforation of the stomach was the result of the gastric juice acting on, and dissolving its coats after death, in fact, a "self-digestion," or chemical softening. Many British pathologists have followed him in this opinion, particularly Dr. Carswell, and Dr. Budd who considers that all the varieties of softening, described by authors, are essentially the same change, and the result of digestion after death, caused by the action of the gastric juice. Some have objected that were the gastric juice capable of producing such an effect, this change ought to be of much more frequent occurrence; but certain conditions are necessary to produce it: first, there must be a certain quantity of gastric juice (possessing its natural acidity) in the stomach at the time of death; secondly, the body must be subject for some hours after death to the temperature requisite for artificial digestion. The first of these conditions is generally met with in persons killed soon after a meal, while the process of digestion is going on, but the acidity of the gastric juice is neutralized (in persons dying of fever, or of other diseases) by medicines, which are so often given shortly before death.

Dr. Budd considers the secretion of the gastric juice to be a reflex function, analogous to the secretion of tears. Now, the flow of tears may be excited, not only by mechanical irritation of the conjunctiva, but indirectly, by pungent vapours acting on the nostrils, or by mental emo-

tion. He conceives that the same thing may happen for the gastric juice; that its secretion may be excited not only by the presence of food in the stomach, but (through reflex nervous influence) by certain diseased conditions of distant organs, as the brain and lungs. And in this way he would explain the occurrence of perforation, or of softening of the stomach, after death by injuries of the head, though no food had been recently taken, (of which he gives a remarkable example); and also the softening of that viscus which is met with in those who have died of disease of the brain, or of the lungs; that in these cases the flow of gastric juice in the empty stomach is excited by irritation reflected from the brain or lungs. He also states that in certain diseases, gastric juice seems to be secreted when the stomach is empty, and consequently exists in that viscus unmixed with food; and, moreover, there are certain catarrhal states of the stomach in which lactic acid is freely generated from the saccharine principles of the food, and forms with the mucous membrane an efficient digesting mixture. In persons who die from (or with) these diseased conditions, digestion of the stomach may occur in as high a degree as in healthy persons killed by accident soon after a meal; and Dr. Budd even goes so far as to maintain that—"Not unfrequently the softening of the stomach may be predicted with tolerable certainty by a peculiar train of symptoms which result from the presence of free gastric juice or of a digesting acid in the otherwise empty stomach."

Though Dr. Budd regards "softening of the

stomach" as occurring in all cases after death, and asserts that its degree depends, *cæteris paribus*, solely on the quantity of gastric juice in the stomach at the time; yet I do not think he is correct in this opinion, and I agree with Andral, Cruveilhier, Louis, and Rokitansky, that though softening takes place after death, it also occurs during life, constituting a true morbid process, and often characterized by a peculiar train of symptoms. These eminent pathologists distinguish two primary forms of softening, which present essential differences, but which are to be carefully distinguished from cadaveric softening. One form, which has been particularly described by Cruveilhier, as *gelatinous* softening, is a disease of infant life, and appears to be "a metamorphosis—a softening—of the mucous membrane of the fundus, which extends to the muscular coat and the peritoneum, converting them and the intervening interstitial cellular tissue into a greyish or greyish-red transparent jelly, with a yellowish tinge, through which single dark brown streaks, the broken down blood-vessels are observed to pass." "The softened portion of the stomach tears at the slightest touch; it dissolves between the fingers, and perhaps in rare cases these rents occur during life, but probably oftener after death, giving rise to effusion of the gastric contents into the abdominal cavity."*

Cruveilhier considers that these perforations always occur after death, as there are never any traces of peritonitis, and he regards the softening as an organic process, *sui generis*, a perversion of

* Rokitansky.

nutrition, without any trace of inflammation, suppuration, or gangrene; and Andral considers that there is an analogy between this state of the stomach and the softening of the cornea, which occurs in animals insufficiently nourished. Infants prematurely weaned are very subject to this disease, the most characteristic symptoms of which are—constant vomiting of mucus, great thirst, diarrhœa of a green serous fluid resembling chopped spinach, great prostration of strength, somnolence, features collapsed, rapid emaciation, and cold extremities; the infant is very cross, and if not judiciously treated, generally dies in a week or ten days. The best mode of treatment is—first to procure a good nurse, but do not let the infant suck long at a time; give small doses of opium and bismuth; let a tepid bath be used every day, and some counter-irritation over the stomach. Rokitansky states "that general anæmia, which is particularly apparent throughout the intestinal canal, and general collapse and wasting, are constant accompaniments of this disease." He considers that the proximate cause may be looked for in diseased innervation of the stomach, owing to a morbid condition of the vagus, and to extreme acidification of the gastric juice; but there is nothing inflammatory in its nature. He also describes a second form in which softening of the stomach takes place, but its parietes are converted into a more or less saturated dark brown or blackish pulp; this may occur under two different circumstances; in the first instance, it occurs both in children and adults as a sequel of acute affections of the brain and its membranes,

and more especially of tubercular meningitis at the base of the brain; it is the same process as gelatinous softening of the stomach, but the development takes place with the greater rapidity, the less the acute disease of the brain has induced that degree of anæmia which commonly prevails in gelatinous softening; and, the tissue being still more or less injected, the superabundant acid acting upon the contained blood, produces the characteristic discoloration. In the second instance, the softening occurs as a sequel of certain cachexiæ, which were either originally acute, or became so under the influence of certain circumstances, viz., the exanthematic, the croupy, the typhoid in the widest senses, pyæmia, acute tuberculosis, acute cancer; it is then to be viewed as a fatal degeneration of these diseases. This form is developed from a congestion in the capillary network of the gastric membranes, and particularly of the mucous membrane of the fundus, which is generally accompanied by a more or less congested state of the spleen.

Louis has described a peculiar form of softening of the stomach, which he has observed in pthisical patients, especially in those who suffer from total want of appetite, with nausea, green vomiting, and a peculiar acid smell from their breath. Sometimes they complain of severe pain in the stomach, and the gastric symptoms often attract the attention of the patient more than the primary disease of the lung; after death, the mucous membrane (in the fundus of the stomach particularly) is found very soft and thin, sometimes it is quite gone. This condition is occasionally met with in persons who die of typhoid

fever (especially when there is much cerebral disturbance), and also in those who die of cancer of the uterus, of peritonitis, or other disease of the abdominal viscera, which cause secondary functional disorders of the stomach.

At a meeting* of the Pathological Society I exhibited a specimen of softening of the stomach, taken from the body of a man, ætat. 63, who first came under my care suffering from attacks of vomiting, which were relieved by the use of bismuth and lime water. He discontinued his visits as soon as he got relief, but returned in about a month with the same symptoms. His complaint had now assumed a much more unfavourable character; the vomiting resisted every mode of treatment, and he died on the 9th of April. The stomach was found so soft and friable in its texture, that the finger readily passed through it at the splenic end; the mucous membrane was very soft and pulpy, particularly towards the splenic end, and the whole organ presented a remarkable mottled appearance.

At another meeting† of the Society, Dr. Hutton exhibited a specimen of laceration of the stomach, which occurred in a child aged eight years, who was admitted into the Richmond Hospital for strumous ophthalmia. Both corneæ were opaque, and studded with numerous very minute ulcers; the child had rather a pale, scrofulous aspect, and was reported by her parents to be liable to indigestion, but in other respects she seemed to be in tolerable health. She was directed to

* April 10th, 1841. † December 18th, 1847.

take three grains of the bromide of potassium, twice or thrice in the day; blisters were applied from time to time to the temples and behind the ears, and eye-drops of different kinds employed. Under this treatment she seemed to improve considerably. Her appetite, general condition, and animal spirits became very good, and the cornea of one eye had nearly resumed its healthy appearance. It was observed that she had a remarkable desire for the fat of meat, and would eat with avidity the portions which other patients left. She was regular in her bowels, and was never heard to complain of pain in the stomach. The treatment was continued with little intermission until the 14th November, 1846, when, in the evening, she complained of nausea. On the succeeding day she vomited at intervals, for some hours; this ceased early in the afternoon of the same day. The resident pupil reported that she had no pain or tenderness of the abdomen, but complained of headach; her pulse was quick and easily compressed. On the morning of the 16th she was evidently sinking, but still complained only of pain in her head; the extremities were cold, and her pulse scarcely perceptible. In the evening she became comatose, and died on the following morning.

In ten hours after death the autopsy was carefully made, and revealed the following extraordinary appearances:—There were the usual general evidences of peritonitis, effusion of lymph, &c. The stomach lay collapsed. It was removed with great care, and accurately examined. At its cardiac extremity there was a

very large rent, four inches in extent, and there were two or three small oval openings, about a quarter of an inch in diameter, in the vicinity of the rent. On examining the coats of the stomach, they were found extremely attenuated at its cardiac extremity, thus accounting for the extent to which this organ had been torn. The serous membrane, to a considerable extent in the neighbourhood of the laceration, was almost laid bare, the mucous membrane having entirely disappeared, leaving only the serous, with a few muscular fibres. The pyloric end of the stomach contrasted remarkably with the attenuated cardiac extremity, for there the coats were unusually thick. Very little appearance of inflammation was manifest on the internal surface; there was scarcely any vascularity, nor was the mucous membrane of the pyloric extremity at all softened. In the ileum there were two or three attenuated patches, but no ulceration. This absorption of the inner coats of the stomach, without inflammation, was, Dr. Hutton observed, somewhat analogous to the condition described by authors, as the result of digestion after death, by the organ itself, but the subjects of such cases have generally been known to have taken a full meal a short time before a sudden death. In the present case, the laceration seemed to have taken place in the efforts of vomiting, and the result was probably facilitated by the hypertrophied state of the muscular coat at the pyloric extremity. The existence of extensive peritonitis indicated that the laceration occurred some time before death. From the period of the first occurrence of nausea and vomiting, to her death, three days elapsed.

I think, therefore, we may conclude, that there are two distinct forms of softening, one, simply the result of the action of the gastric juice upon the dead tissues, the other, the result of a peculiar morbid process, attended with an increased secretion of gastric juice which acts on the living tissues. It seldom occurs as a primary disease, but generally supervenes during the course of a great variety of morbid states, acute and chronic; but which have this in common, that they are all attended with great depression of the vital powers.

## LECTURE XIII.

*Cancer of the Stomach; Morbid Anatomy; Symptoms.*

The next subject we have to consider is cancer of the stomach, a disease highly important from its frequency, its fatal nature, and its difficulty of diagnosis in many cases. It is a specific degeneration, and belongs to the class of "heterologous formations," the essential character of which consists in the presence of a solid or fluid substance, different from any of the solids or fluids which enter into the healthy composition of the body. We meet with all the different species of carcinoma in the coats of the stomach, the fibrous or scirrhous most frequently, next the medullary or encephaloid, and lastly, the areolar or colloid, which, though much less common than the other forms, yet occurs more frequently in the stomach than in any other part of the body. These may occur separately, or in combination, as they are merely varieties of the same disease, for though different names have been employed, and attempts have been made to establish them as distinct diseases, yet they merely differ in the relative amount and arrangement of their cells and fibres, and all may be classed under the term malignant or cancerous in its most extensive signification. All the coats of the stomach may be affected with cancer, or it may commence in any one of them separately, but it most frequently commences in the submucous cellular tissue. In advanced cases all

the textures are often affected, but the general symptoms do not vary greatly, whatever may have been the primary seat of the disease, so that it is not easy to determine in which of the tissues the disease actually commenced, nor, so far as regards practice, is it of any importance. Scirrhus, or fibrous cancer, which is the most common variety, generally commences in the submucous connective tissue, which appears converted into a resisting whitish, fibro-lardaceous mass, and thus unites intimately with the mucous membrane on one side and the muscular coat on the other; the latter becomes pale, its fibres waste or degenerate, and the interstices are filled up by a slightly translucent and apparently crystalline substance, composed of cells which have replaced the original organic constituents of the muscular coat, so that a transverse section would exhibit an appearance of whitish or blueish-white lines, perpendicular to the surface of the mucous coat; and the thickness is sometimes very considerable, being upwards of an inch, but it varies according to the diffusion of the deposit. Scirrhus is the form of cancer most frequently confounded with simple induration and hypertrophy of the coats of the stomach, which, though not itself of a malignant character, may sometimes occur with malignant disease at or near the pylorus, and is a result of the indirect operation of that, in common with other causes, which call for increased exertion of contractile force. It is owing to confounding this condition of hypertrophy with cancer, that Andral has considered cancerous affections of the stomach as the result of chronic inflamma-

tion, but they may be distinguished by "the preponderating increase of substance in the submucous cellular tissue and its want of uniformity, the accompanying cartilaginous hardness and closeness of texture, the fusion with the mucous and muscular coats, and particularly the alteration in the muscular tissue."* The degenerative character of the new formation, and the deposition of cancerous deposits in other organs, particularly the liver, will be also a guide to us, and, in experienced hands, the microscope also may help to clear up the doubt, as if loculi of cell substance are mingled with the fibrous tissue; and if there are cells in the submucous tissue, which differ decidedly from normal formations, the probability is that it is cancer; but I am of opinion that we cannot attach great value to any structural character as an essential characteristic of cancerous formation, and I agree with Wedl, that, "in a histological point of view, it is impossible to lay down any precise definition, and it is only the degenerative character of the new formation that can allow this to be done, unless a criterion (?) be afforded in the deposition of cancerous growths in other organs."† Mr. O'Ferrall exhibited a series of preparations at a meeting‡ of the Pathological Society, illustrating the characters of simple hypertrophy as distinct from cancer—"The stomachs, in these cases, were distended and thickened; the section resembling that of a thickened urinary bladder and prostate gland;

* John Müller.

† Pathological Histology, translated by Busk, p. 552.

‡ January 12th, 1839.

a probe could hardly be forced through the pylorus; the mucous, cellular, and muscular coats were hypertrophied, but distinct; *there was no ulceration* nor disease in any other part of the body." Dr. Lionel Beale asserts, that a microscopic examination of this hypertrophied tissue affords nothing more than the original elements of the tissue, with granular matter, and a few badly-defined cells. Dr. Watson states, that in preparations of true cancer of the stomach there is always a white sediment (in the bottom of the bottle) consisting of some of the matters peculiar to cancer, but there is no such deposit in simple hypertrophy. These distinctions are not mere anatomical refinements, but are of great practical value, if, as Dr. Watson truly observes, "they do no more than enable us to comfort the minds of survivors, and to relieve them from the apprehension that they also may be doomed as likely to become the victims of cancer." The morbid deposit often forms tumours in the sub-mucous cellular tissue, and protrudes the mucous membrane forwards, forming masses termed polypi, vegetations, fungi, and they may acquire a considerable size before the mucous membrane covering them appears to be implicated in the disease; but when much distended, by the projection of the tumour into the cavity of the stomach, it then gives way in one or more places to ulcerative absorption, and the morbid structure communicates with the cavity of the stomach. Medullary cancer thus usually occurs as a secondary product upon the scirrhous mass, and induces a rapid destruction of the mucous membrane, owing to the readiness with which

its superficial portions are ruptured, particularly in the stomach. The mucous membrane may be affected primarily, and undergo certain peculiar changes. Rokitansky states "that it sometimes degenerates into an areolar cancerous tissue, which discharges large quantities of gelatinous mucous fluid; or it is converted into erectile tissue, as a fungoid growth, which becomes the seat of encephaloid infiltration, suppurates, and partially exposes the submucous scirrhous cellular tissue; or, lastly, it most frequently becomes the seat of a sloe-black softening with hæmorrhage, and we thus find the scirrhous submucous cellular tissue invested by a thin, gauze-like black remnant of the mucous membrane, or it is quite denuded, merely retaining here and there a few solitary black convolutions of vessels at its surface."

"The scirrhus, too, at once becomes the seat of various metamorphoses. It may, after it has been denuded of its mucous membrane, become gangrenous in large patches or in round circumscribed spots, the tissue exfoliating by layers, so as to give rise to deep, smooth excavations in the crude cancer; or it may become developed into a more highly-organized carcinomatous formation, such as medullary sarcoma, accompanied by bleeding fungoid tissue; this is soon destroyed by a suppurative process, leaving an ulcer which is surrounded by an elevated lardaceous margin."

Though these cancerous ulcers are generally a result of softening of scirrhous or encephaloid deposit, yet they may occur in the mucous membrane primarily, and have then caused some

doubt as to whether it was a simple chronic ulcer or a cancerous one; but in general the latter may be distinguished by its irregular shape, size, and situation, by its borders which are uneven, infiltrated with cancerous deposit, often fungous and bleeding, as also by its surface, which may be even gangrenous, just like cancerous ulcers on the external parts of the body, and though it may gradually destroy the coats of the stomach, and thus still resemble the perforating ulcer, yet it has much greater tendency to form adhesions with the adjacent viscera, the liver, pancreas, spleen, or transverse colon, and so prevent communication with the peritoneum. It is a curious fact that cancerous ulcer of the stomach seldom, if ever, has the offensive smell which is generally met with in open cancer of other parts, and which is a source of great annoyance and distress to the patients and attendants. It is, probably, prevented by the antiseptic agency of the gastric juice on the surface of the ulcer. Medullary cancer differs from scirrhus chiefly by its rapid and extensive growth, by its tendency to degenerate into vascular fungoid vegetations, and by its facility of extensive dissemination.

A third species of cancer is that in which the parietes are considerably thickened, and in which a section of the morbid part presents no traces of the proper tissue of the stomach, but, instead of it, a number of little cells, intersected by fibrous septa, and containing a glue-like substance; whence it has received the names of colloid, or gum-cancer, or areolar, as the natural structure of the part is transformed into a fibrous areolar

framework, filled by a transparent jelly. When the disease is far advanced, all traces of organization disappear, there is no vestige of vessels, and all the different structures are reduced to one uniform morbid type, the stomach preserves its shape, but is generally greatly increased in thickness; ulceration, which occurs so frequently in other forms of cancer, is seldom seen in this, for it is rather a successive destruction of parts, layer by layer, without any appearance of vascularity in the subjacent structures. This form of cancer is found most frequently at the pyloric orifice of the stomach, but does not confine itself to that part, as was well exemplified in two cases which I exhibited at the Dublin Pathological Society. In one, that of a man, half of the stomach was engaged, and in the other case nearly the whole of it was destroyed. The coats of the stomach are sometimes thickened to the depth of two or three inches, while its cavity is proportionally diminished, so as to appear only the size of a small intestine when opened into, for it preserves its external appearance, the morbid deposit being gradually laid down, as it were, in its framework. In some cases it presents a rough appearance externally, being covered with irregular tumours, which project underneath the serous membrane, and appear to be developed in the lymphatic vessels, while, internally, the mucous membrane appears converted into soft spongy vegetations, semi-transparent, and composed of fine cells filled with gelatinous material. The diseased part sometimes extends gradually into the surrounding mucous membrane, which is generally well

defined, with an elevated border, and here the vegetations are large and prominent, while towards the centre they appear as if flattened, and gradually disappear. They are composed of the mucous papillæ greatly developed at first, but which are eventually destroyed, though without any of the usual phenomena of ulceration; there is no change of colour, nor increased vascularity; it appears more like a change which had taken place in some inorganic body by some new mechanical process, than the result of any vital action. Dr. Hodgkin has described another variety of this form of cancer, in which the individual cellules containing the transparent mucus are much more distinct and defined; and may be compared to frogs' spawn without the black spots, or to small grains of sago boiled to transparency, thickly sprinkled over the greater portion of the mucous membrane, which is not so remarkedly thickened as in cases belonging to the preceding variety. One anatomical peculiarity in these two forms of colloid cancer is, that the orifices are seldom completely obstructed, even though the morbid deposit be very great.

Another anatomical peculiarity, but which is common to the three varieties of cancer, is, that "cancer of the pylorus is accurately bounded by the pyloric ring, and never extends to the duodenum,"* whereas cancer at the cardia invariably involves a portion of the œsophagus. Dr. Budd states that this "singular circumstance is probably owing, in great measure, to the closeness of the cellular tissue in the duodenum,

* Rokitanski.

which must impede the extension of the disease along it. Cancer does not spread readily along a mucous membrane, except it be through the intervention of the submucous cellular tissue, into which the cancerous matter filters; and if cancer of the stomach has generally a greater superficial extent than cancer of the bowel, it is owing to the greater looseness of the cellular tissue in the stomach, which the extensive and rapid variations in its volume require."

# LECTURE XIV.

*Cancer of the Stomach; Symptoms and Signs.*

Cancer of the stomach is essentially a chronic disease, and in most cases *primary;* that is, it is the part first affected with cancer, which commences in this organ more frequently than in any other, except the uterus. It may attack any part of the stomach, but the pyloric end is by far its most frequent seat; next to this in order of frequency, the lesser curvature, then the cardia, the great curvature, the anterior and posterior walls. The size of the stomach depends on the situation and extent of the disease; if the pylorus be so narrowed that there is great obstruction to the passage of food into the duodenum, the stomach is generally much enlarged; but if the cancer be seated in the cardiac region, the stomach is generally found small and contracted. The symptoms of cancer of the stomach are very variable, but are generally those of indigestion. Dr. Watson states, that "there are sometimes no symptoms at all, or none which the most sagacious practitioner would refer to the organ affected;" and he mentions the case of a clergyman, whom he saw in consultation with an eminent physician, and a surgeon of no less eminence, the diagnosis made was, lumbago or calculus in the kidney; but his death discovered cancer of the stomach, which was never suspected.

The symptoms and signs of cancer of the stomach may be considered under two heads;

first, those referrible to the stomach itself, and which we may term local, as indigestion, vomiting, pain, and tumour; secondly, those depending on the derangement of the system at large, and which may be termed general, as emaciation and the peculiar colour of the skin. Flatulence, acrid eructations, heartburn, and constipation, are among the earliest and most frequent symptoms of cancer of the stomach. The tongue is generally moist and clean, and the appetite, in some cases but little affected up to a late period, even though there be extensive ulceration, debility and emaciation soon succeed, and the patient presents a peculiar straw-coloured, sallow appearance, which is very characteristic of the disease. The temper becomes irritable and morose, and the nights restless, but the intellect is not affected, and though anxious about themselves, they are, generally speaking, sanguine of recovery up to the very last. The pulse is generally feeble and slow, the skin rather below the natural temperature, in fact, the power of reaction, to produce a feverish state of the system, seems as if wanting. These symptoms are generally followed by nausea and vomiting; the latter, though not an early symptom, becomes very frequent and constant as the disease advances—at first only occurring after food, or in the morning fasting, when it consists of transparent or glairy mucus; but as the disease proceeds, the vomiting increases also, so as to occur several times in the day, particularly after any attempt at taking food. In a case lately brought before the Pathological Society by Mr. Richardson, the only symptom of disease of the stomach

was dry retching, though dissection revealed a large cancerous ulcer on the posterior aspect of the pyloric extremity. In other cases there has not been any vomiting during the whole of the illness; this, however, can generally be explained by the cancer being seated in the body of the stomach, leaving the orifices free; but there is also much difference as to the times at which vomiting occurs, in some cases being immediately after taking food, in others not for some hours, or even days. These variations, however, can be in most cases explained by the seat of the disease, being in one person at the cardia, in another at the pylorus, and so causing obstruction to the food either getting into, or passing out of the stomach, thus being more a mechanical than a vital process; though this explanation will not account for all cases, as vomiting of the food has been an urgent symptom, even though there was no mechanical obstruction to its passage into the duodenum. Dr. Watson states, that this is owing to the disease so involving the pyloric end of the stomach that the propelling force cannot be exercised sufficiently to overcome the sphincter muscle of the pylorus, the natural and habitual condition of which is that of contraction. Vomiting, however, is not a constant occurrence, even in those cases in which we should expect to find it, namely, in cancer of the pylorus, for it may be present at one period of the disease, and afterwards cease, even though the disease be progressing. This may be owing to one of three causes: 1st. The obstruction may be removed by ulceration, and the passage into the

duodenum left free. This rule, however, does not hold good in the majority of cases, for M. Valleix* states that on a careful analysis of thirty-three cases which were taken by M. Louis (whose accuracy of observation is a sufficient guarantee for any statement), he arrived at the conclusion that if there is one lesion which coincides more particularly with the vomiting in cancer of the stomach, it is ulceration, even though it has destroyed the valve of the pylorus, and rendered the passage of food from the stomach into the intestines apparently perfectly free. 2nd. The mucous membrane of the stomach may be removed or disorganized, when, as the muscular action of vomiting is mainly due to irritation of this membrane, the medium of sympathy is cut off and it then ceases. This explanation may account for the curious fact, that some persons who have had long intermissions of their symptoms, have been able to take food, and have actually died fat, as was the case of Napoleon I. who died of extensive cancerous disease of the stomach, "the cardiac extremity, for a small space near the termination of the œsophagus, being the only part that appeared in a healthy state,"† and yet his omentum was very fat, and upwards of an inch of fat on the chest and abdomen. I brought a remarkable case before the Pathological Society;‡ it was that of a lady, æt. 60, who in June, 1847, ten months before her death, complained of uneasiness in the epigastrium and flatulence. On examining her abdomen, I detected a hard, irre-

* Guide du Medecin, vol. v. p. 244.
† Abercrombie, p. 30.
‡ March 25th, 1848.

gular-shaped tumour in the left hypochondrium. It was suspected in the first instance that the tumour was caused by a collection of indurated fæces, as she was very subject to constipation of the bowels. She soon complained that she could not swallow without much difficulty, which, however, was not experienced till the food had passed to some extent along the œsophagus, where it remained for a short time, and caused considerable uneasiness. Slight pressure on the epigastrium caused a sensation of nausea. The tumour in the hypochondrium subsequently became flattened, as if it were formed of omentum. Sir Henry Marsh agreed with me that it was a carcinomatous tumour, and after this the patient went to London to seek advice. She saw there one of the most eminent physicians, who told her family that it was not cancer, and directed the use of hydriodate of potash. At this time she suffered from frequent vomitings, which usually took place after her meals; and it was remarkable that she rarely vomited the food she had last taken, but that which she had eaten at a former meal. On the 5th of October she vomited a dark matter, like coffee-grounds, which was evidently decomposed blood, and her feet and legs began to swell. However, it was remarkable that in the month of January all vomiting ceased, and she seemed almost recovered. Before this she had a *dark sooty* appearance of the cheeks, which now completely disappeared, her tongue became clean, and bowels regular. She was able to eat and retain on her stomach a fair allowance of animal food, boiled down to an essence. She was able to enjoy society, and to

drive a distance of five or six miles every day, so that all her friends thought she was recovering; this amendment continued for two months, when her former symptoms returned. In a fortnight from the recurrence of the bad symptoms, effusion gradually took place into the abdomen, causing great distress, and she finally sank and died.

*Autopsy.*—About five gallons of transparent serum were contained in the cavity of the peritonæum. The liver exhibited several well-marked examples of the tubercles of Farre, which were remarkably soft. The stomach presented a very striking specimen of areolar or gelatiniform cancer. The œsophagus appeared to be slightly granular at the cardiac portion. The anterior wall of the stomach was enormously thickened, its muscular coat had completely disappeared, and the place of the mucous coat was supplied by a mass of jelly-like matter, contained in cells, and resembling frog's spawn. Scarcely a trace of the mucous coat remained, but there was not any appearance of ulceration; the cardiac and pyloric orifices were patulous. The omentum, greatly contracted and thickened, was crowded with semi-transparent, hard, cancerous tubercles, and similar ones were scattered all along the surface of the intestines and mesentery. The parietal peritonæum was thickly coated with large, white, hard patches, evidently of a cancerous nature. The peritoneal surface of the uterus and ovaries was covered with a cancerous deposit, and the circumference of the os uteri was harder than natural.

The peculiar features of this case were, first, the patient never complained of pain; secondly,

the almost complete cessation of vomiting, and difficulty of swallowing for a period of four months previous to her death. She complained chiefly of great debility.

There was one circumstance connected with this case worth mentioning as a practical lesson; it was this—when my patient was apparently in a very hopeless state, vomiting, or rather retching constantly (for she was scarcely able to swallow even the smallest quantity of liquid, so that she was supported for ten or twelve days with lozenges made of essence of beef, and nutritive enemata), emaciated to the last degree with a well marked cancerous hue, and an exudation like melanosis over both eyebrows and malar bones, some of her friends were anxious for her to try the effects of homœopathy; and certainly if it were justifiable to tolerate such a system in any case, this would have been the one. Her own good sense and confidence in us prevented her making the experiment, and it was fortunate that she did not, as about that very time her symptoms began to improve, and she then had that remarkable remission for upwards of two months, for which homœopathy would have got credit, and we could scarcely have denied its claims to success. A third case, in which vomiting ceases after having been once present is, when, at a very advanced period of the disease, the patient is unable to vomit from debility, when it is a very fatal symptom. There is this peculiarity in the vomiting which attends cancer, that some substances, often the most indigestible, are retained, while others are rejected, the stomach appearing to exert an elective affinity;

and it is a very curious phenomenon which occurs, especially when the disease is seated in the pyloric extremity of the stomach, that articles of food which had been taken several hours previously (or even two or three days), may be thrown up more or less digested, while those which have recently been taken are retained. This may be explained on the supposition of the food recently taken being directed to the fundus of the stomach, while that previously digested, and then passed onwards to the diseased pylorus, is thrown backwards and upwards to the cardiac orifice. There is great difference in the nature and appearance of the matters vomited, according to the period of the disease; at first they consist of glairy mucus alone, or mixed with food, sometimes of pure blood; but this seldom occurs, and when it does, it is generally at an early period of cancer, when the submucous cellular tissue is passing into the state of scirrhus, as the mucous membrane itself then occasionally pours forth blood in the form of exhalation. Andral states that he has more than once found the mucous membrane of the stomach perfectly healthy, covering a mass of scirrhus in persons who had had abundant hæmatemesis shortly before death.

Dr. Banks exhibited, at a meeting of the Pathological Society, the stomach of a man who had vomited "a large quantity of pure blood," yet on dissection "the mucous membrane of the stomach did not present any trace of ulceration, though much thickened throughout its entire extent, and covering a mass of malignant disease." The most frequent form of hæmorrhage in cancer of the stomach, however, generally

occurs towards the latter periods, though not necessarily dependent on ulceration, and presents a dark brown or black appearance, depositing a sediment like coffee-grounds, from whence it has received the name of coffee-ground vomit, but which appearance is caused by the blood exhaled into the stomach being acted on and altered by the acids in this viscus.

Dr. L. Beale states, "that the colour of the so-called coffee-ground vomit appears to be due to the presence of a dark brown pigment in considerable quantity, forming small aggregations or minute granules, and probably consisting of the altered colouring principle of the blood, with a considerable number of blood globules, somewhat changed in form."

In one case which I brought before the Pathological Society, Mr. T. H. Ledwich detected in the vomit corpuscles presenting the appearance of what are described as cancer cells; but although the presence of such elements may be an useful adjunct in obscure cases, still their absence must not be conceived as an indication of an otherwise normal state of the stomach, for I believe in most cases they will be so much broken down as not to be recognizable. Pain in the epigastrium is generally described as one of the symptoms of cancer of the stomach; but according to my experience, it is seldom present, indeed I regard it as the exception rather than the rule. In a very obscure case of "extensive cancerous disease of the stomach," recorded by Dr. Bewley, in the Dublin Hospital Gazette,* there was no

* April 15, 1856.

pain, and Dr. Stokes, who was consulted on the case, observed "that the absence of pain was rather in favour of the diagnosis than otherwise." Patients often complain of a disagreeable sensation of weight or uneasiness in the region of the stomach, but we very seldom meet with these peculiar lancinating pains which are so characteristic of cancer in the external parts of the body; they do, however, occasionally occur, as in a case recorded by Dr. Watson, of a man "whose main complaint was of pain in the epigastrium, always present, but augmented, in frequent paroxysms, to an extreme degree of severity, and most violent an hour or two after eating." On dissection a ragged, sloughy, cancerous ulcer was found, and Mr. Kiernan traced the trunk of the gastric branch of the par vagum into the scirrhous mass. Dr. Mayne exhibited, at a meeting of the Pathological Society, a specimen of cancer, situated in the posterior wall of the stomach, in which the only symptom referrible to the stomach was a constant boring pain in the region of the pylorus, there was no vomiting nor irritability of the stomach. They often complain of pain in the back, about the last dorsal vertebra, which is described as of a boring character, and radiates along the course of the intercostal nerves; it is probably owing to the lymphatic glands behind the stomach becoming infected with the disease. In some cases hypertrophy of the nervous twigs of the pneumo-gastric, and phlebitis of the venous ramifications has been found; this latter condition may help to explain the fever and thirst which is sometimes met with in cancer of

the stomach, for as a general rule these symptoms are absent. The urine in most cases is scanty, acid, and deposits urates, or crystals of uric acid. The skin is generally dry, but they may perspire profusely at night, and Dr. Banks has recorded a case, where "profuse perspiration alternated with diarrhœa for six weeks before a patient's death, from cancer of the stomach." Diarrhœa is generally a late symptom, and is supposed to set in, when the obstruction at the pylorus is removed by ulceration, and the food passes in an undigested state, along with the morbid secretions from the stomach into the bowels and irritates them. Black tarry evacuations often pass from the bowels, and consist of blood which is passed out of the stomach into the intestines, altered by the action of the secretions it has met with. The presence of a tumour in the epigastric region is a very important sign of cancer in the stomach; but, in the early stage of the disease, it often escapes detection, and must be sought for when the stomach and bowels are empty. It is usually found a little above and to the right of the umbilicus, just below the margin of the ribs, but it may be met with to the left, or over the pubes, or even in the iliac regions; in fact, its situation varies as its size, and whether it has formed adhesions to the adjacent viscera, for if it is large and free, it gravitates more or less towards the lower regions of the abdomen, and is often found in unexpected situations, causing much difficulty in the diagnosis. It varies in size, and the surface may be either smooth or nodulated; in some cases it merely gives an indistinct sensation of resistance

or hardness, while in others we can easily detect a well-defined tumour, which gives a dull sound on percussion, and is distinctly visible. It is moveable in most cases, and alters, according as the stomach is full or empty, following the position of the patient, and the acts of respiration; if, however, it has formed adhesions, and the parts posterior to it are involved in the disease, the tumour may be fixed; in such cases a distinct strong pulsation and loud murmur are often transmitted to it from the aorta. It is seldom painful on pressure, and may feel superficial, as if under the integuments; in some cases I have seen a large vein passing over the surface of the tumour. When the emaciation is very great, the form of the stomach may sometimes be distinctly traced, and its peristaltic motions even seen, particularly if the disease is seated at the pylorus. Effusion of serum into the peritoneal cavity and œdema of the feet generally take place towards the termination of the disease; this may be accounted for, either by the change induced in the blood by what Rokitansky terms the *cancerous crasis*, or alteration of the natural composition or mixture of the blood, or by the mechanical pressure exercised on the veins by the tumour, or by cancerous matter being deposited in the veins, or in some cases by adhesive inflammation having attacked their lining membrane.

# LECTURE XV.

*Cancer of the Stomach, Causes, Diagnosis, Termination, Treatment, Question as to Life Assurance.*

Nothing certain is known with regard to the *causes* of cancer of the stomach, for it gradually developes itself in an obscure manner, without any apparent appreciable cause. Advanced life appears to be one of the most influential predisposing causes, for it rarely occurs before the age of thirty-five. I have, however, seen two cases of well-marked cancer of the stomach in young persons, one a male, aged twenty-two, who died under the care of Dr. Aquilla Smith, and in whom the stomach was one mass of scirrhus, the walls thickened, so that its cavity was reduced to the size of a small intestine; the other, a female, twenty-five years of age, under Dr. Law, in Sir P. Dun's Hospital; Dr. Banks exhibited, at the Pathological Society, "a mass of malignant disease, which engaged the pyloric extremity of the stomach, in a young man aged twenty-five;" but it is so unusual to meet with cancer of the stomach at this early age, that such cases may be considered as exceptions to the rule; it is curious, that all these were of the form termed scirrhus, whereas, when cancer attacks the kidney in the young subject, it assumes the medullary form. Sex appears to exert some influence on its production, for all authors are agreed that it is more frequent in men than women. Hereditary predisposition has been remarked, particu-

larly in the case of the Napoleon family, as the late Emperor, his father, and his sister Caroline, are said to have all died of cancer of the stomach. A lymphatic temperament has been accused as a cause, but, I think, without sufficient reason, for most of the cases I have met with were previously of a healthy, strong constitution, and Rokitansky has remarked, "that tubercle and cancer are seldom developed together, and seldom arise in succession in the same person;" he infers, therefore, that the constitutional states which favour the occurrence of the one disease, oppose the development of the other. Intemperance or bad nourishment cannot be considered as causes, for it attacks the sober and the dissipated, the rich even more than the poor. Various professions, occupations, and trades have been assigned as causes of this disease, but it is probable they are mere coincidences. Inflammation has been considered by Andral and Broussais to be a frequent cause of cancer, but a strong argument against this opinion is furnished by the anatomical fact, that the disease occurs most frequently at the pylorus and lesser curvature of the stomach, the parts least exposed to the ordinary causes of inflammation, and though in some cases the mucous membrane adjoining the cancerous structure is found altered, softened, and presenting the appearance of chronic inflammation, yet in other cases it appears perfectly sound up to the very edge of the morbid deposit, and may even be continued over it, without any breach of surface. Grief and long continued anxiety of mind, with depressed vital power, appear to exert most influence as exciting causes; but, I believe, there

must be a predisposition to degeneration, or some modification of nutrition and secretion, in order to produce it. It is certainly met with more frequently in the higher and middle ranks of life, probably owing to their greater liability to anxiety of mind, and depressing mental emotions. The diagnosis of cancer of the stomach is, therefore, often very difficult to establish, especially in the early period of the case, as we are ignorant of the causes, or conditions under which it is most likely to occur, and there is no certain pathognomonic symptom or sign on which we can rely. The diseases most likely to be confounded with it are, first, chronic gastritis, but the peculiarities of the vomiting, the progressive emaciation, the characteristic aspect of the patient, and especially the occurrence of the peculiar dark or coffee-ground vomit, with the presence of a tumour in the epigastrium, will in most cases serve to distinguish them, and indicate which is the result of organic disease. We cannot, however, place much reliance even on the presence of a tumour as pathognomonic of cancer in the stomach; for it may have its seat in the gall-bladder, spleen, omentum, or kidney; but the situation and connexion of the tumour with the adjacent viscera will generally serve to distinguish them. In some cases, however, the diagnosis is very difficult; thus I brought before the Pathological Society the case of an old woman whom I saw in consultation for supposed cancer of the stomach, as she was suffering from constant vomiting, and had a smooth moveable tumour, which did not pulsate, nearly as large as the hand, in the left hypochondrium just beneath the false ribs of that

side, but not extending quite as high up as the spleen. It yielded a dull sound on percussion, and the left leg and foot were œdematous. She was rapidly sinking when I saw her, and died on the following day. I made the diagnosis of cancer of the omentum from the situation of the tumour, and the dull sound on percussion, but on examination the tumour presented between the colon and large end of the stomach, and was formed by a large cyst in the left kidney. There were three distinct cysts within the organ, one enormous one, two of a smaller size, and a calculus was found in the largest cyst. Dr. Bright states, "that disease of the stomach might be mistaken for tumour of the liver, particularly of the left lobe, as the small curvature, when scirrhous, and particularly when fixed by disease to the liver, resembles greatly hepatic tumour. A malignant tuber in the stomach likewise, or a degenerative thickening of the whole of that organ, may at first sight deceive; but strict examination, particularly by percussion, will demonstrate the cavity beneath, and show that the disease is situated in a hollow viscus. In general, however, the symptoms referred to the stomach, and increased or excited by eating, the frequent nausea or vomiting, the marked emaciation, and the absence of the more remarkable symptoms of hepatic disease, will enable us to determine that the tumour belongs rather to the stomach than the liver."

Dr. Watson says, "that a diseased pancreas has been mistaken for a thickened pylorus," but I think its lateral immobility, while a strong pulsation is communicated to it from behind, and

the resonant sound on percussion over it, as the stomach and colon are in its front, will prevent our making such a mistake. In the Dublin Hospital Gazette,* I have illustrated the occasional difficulty in the differential diagnosis between aneurism of the abdominal aorta, and cancerous tumour of the stomach; but the history and appearance of the patient, along with the character of the pulsation, which sometimes ceases on changing the position of the patient, and is communicated, not diastolic, will generally serve to distinguish them from each other. Simple chronic ulcer of the stomach is sometimes difficult to distinguish from cancer, but I have entered fully into their differential diagnosis in a previous lecture; there is one point, however, which I had nearly forgotten, namely, that though the pain in simple ulcer is frequent, yet it is often variable, ceasing for some time, but in cancer, the pain, though seldom present, and even then being neither severe nor lancinating, yet is almost always constant after it has once commenced. I have seen a cancerous tumour of the pylorus mistaken for a collection of fæces in the colon, and in some cases even a ventral hernia has been mistaken for cancer of the stomach, particularly when frequent vomiting and emaciation have been present; but a careful examination of the hernial tumour ought to prevent such a mistake, as it is soft, smooth, elastic, resonant on percussion, and generally reducible. Spasmodic contraction of portions of the abdominal muscles may be also mistaken for a solid tumour, but

* No. 22, vol. i.

the resonant sound given on percussion will generally decide the question. Dr. H. Kennedy lays great stress on the mobility of the tumour with the act of respiration as a means of diagnosis;* for if it be a tumour in the stomach, and no adhesions have formed between it and the abdominal parietes, it will move up and down with each act of respiration, which would not be the case were it owing to contraction of the muscles. Certain functional affections of the stomach may simulate cancer, but the history and progress of the case, the concomitant symptoms, and the result of treatment, will generally enable us to make an accurate diagnosis. Dr. Law has informed me, that a gentleman died under his care of extensive cancer of the stomach, who had been treated for two years by several competent practitioners for functional disease of his heart, the symptoms referrible to the stomach having only developed themselves a short time before his death. Having satisfied ourselves that cancer of the stomach is present, we can in most cases determine what portion is affected, for if the food "is returned immediately after having been swallowed; if deglutition is followed by a sensation of obstruction under the lower part of the sternum, or by a feeling that the food does not pass into the stomach; if the aliments are ejected instantly without change, and mixed with some glairy mucus; or when there is much nausea, without much evacuation by the mouth, excepting glairy matters; then it may be inferred that the disease is seated in the cardiac orifice of

* Dublin Quarterly, Nov. 1851.

the stomach. In these cases the pain is more limited to the epigastrium and beneath the sternum, often extending to the back."*

No tumour is observable in such cases, but if the pylorus be the seat of the disease, we can often detect a superficial or deep-seated tumour, which varies according to the position of the stomach, as this viscus is generally dilated, and it then often communicates a gurgling sound on percussion or agitation (like the noise made when a vessel half full of fluid is shaken), owing to the mixture of fluids and gas in its cavity. In these cases vomiting does not generally occur till some hours or even days after taking food, and then a large quantity of undigested matter is rejected. It was a point of diagnosis on which the late Mr. Abraham Colles laid much stress, that cancer of the pylorus was characterized by the vomiting of an unaccountable quantity of fluid, being much greater in amount than the quantity swallowed. Similar symptoms may be caused by stricture of the pylorus, though there be no cancerous deposit, nor palpable tumour, for it may result from the deposit and contraction of lymph effused in the sub-mucous cellular tissue, the effect of simple inflammation, or of intemperance, or the stricture may be caused by the cicatrization of a simple ulcer at the pyloric end of the stomach, which will cause great contraction of the pylorus; but such an occurrence is comparatively rare, and even when it does occur, the history of the case, the aspect and age of the patient, will, in most

* Copland, Dict. of Pract. Med. vol. iii. p. 922.

cases, prevent our mistaking it for cancer. We are also often able to diagnose the particular kind of cancer, as they differ in their symptoms, and rate of progress; thus, medullary cancer causes more local distress and constitutional suffering than either scirrhous or colloid; and it also grows quicker, and becomes sooner and more widely disseminated than either; for as the veins of the stomach all run to the liver, and the cancerous corpuscles are carried by the veins and lymphatics to this organ, they are all stopped in the plexus of capillary vessels which make up its lobular substance, and thus give rise to cancerous tumours in the liver, but in colloid cancer, the germs of the disease are too large to be transmitted through the veins, and the liver is therefore not so liable to be affected with it secondarily; but we often find the omentum or mesentery affected with the same kind of cancer, which was probably conveyed by the lymphatics, or resulted from the mere transplantation of germs detached from the surface of the original seat of the disease. Colloid cancer is generally very difficult of diagnosis in the early periods of the disease, for its symptoms are often only manifested when it interferes with the functions of the stomach, by mechanical obstruction, so that we are often surprised to find great destruction of the mucous membrane in cases where we little expected such a change. It generally, however, causes a more extended tumour than the other forms of cancer, as it involves the body of the stomach to a greater extent, though it frequently leaves the orifices free. The duration of the disease varies also as to form, the medullary being the quickest,

the colloid the slowest, and the period of time may be estimated from six months to two or even three years, but about fifteen months is its average. The duration and progress of the disease, however, depend much on the form of cancer and its seat. If it occupy the cardiac orifice, and if it be of the medullary or fungoid cavity, its course will be much more rapid than when it is of the scirrhus form, and is seated in or at the pylorus; for in the former case the patient not only has the cancerous crasis to contend with, but also the mechanical obstacle to the entrance of food into the stomach, as the disease generally extends up the œsophagus, and gradually obliterates the passage, so that the sufferings of the patient are greater, and emaciation commences earlier, is more rapid, and proceeds to a greater extent than when the pylorus is its seat.

The termination of cancer of the stomach is always fatal, but death may occur in various ways. In most cases the patient dies of exhaustion and nervous irritability, worn out by frequent vomiting, inability to retain nourishment, and loss of rest. In some cases a communication has been established by ulceration between the stomach and colon, and then death has rapidly followed, owing to the food not undergoing the process of chymification, and to the colliquative diarrhœa which is excited by it; but in other cases death is caused by the cancerous ulcer perforating the coats of the stomach into the peritoneum, a remarkable example of which I showed at a meeting of the Pathological Society, in the case of a man who had been for some time under the care

of Mr. Shannon for hydrocele, but had never complained of his stomach, when he was suddenly, and for the first time, attacked with severe pain in that region, attended with vomiting of a dark fluid substance, of the colour of coffee grounds. He rallied, and got better after a while, but again sank, and when seen a few hours later in the same day he was dying. His death took place just nine hours after the attack. Upon opening the abdomen the first thing that came into view was a large perforation on the anterior surface of the lesser curvature of the stomach. On opening that viscus an enormous ulceration was discovered, occupying a surface as large as the palm of the hand, with ragged, everted edges, and a deposit of scirrhous substance all round it in an elevated band, forming a thick ridge; the orifice of the pylorus was also greatly contracted. It was remarkable that this patient had never complained of any symptoms referrible to the stomach till such a short time before his death; and the case also afforded an example of a rather rare species of termination to carcinomatous ulceration. Dr. Hill examined some of the diseased structure under the microscope, and found in it all the usual characters of carcinomatous degeneration.

Although I consider it a waste of time to speak of the *curative* treatment of cancer of the stomach, yet the *palliative* deserves much consideration, as by attending to it we may not merely relieve the sufferer of many of his most distressing symptoms, and thus smooth his path to the grave, but we may even prolong his life, and that in a comparative state of comfort. The first and great

point is, to suit the quantity and quality of the food to the changed condition of the stomach, to regulate the diet, observing what agrees best with the patient. Give light, farinaceous food, in small quantities at a time, and easy of digestion, as sago, tapioca, arrowroot made on milk or water, and taken plain, or in effervescence, or mixed with a little sherry or brandy, or made on good chicken broth or beef tea. Mr. Jerome Morgan tells me that he is in the habit of giving chicken broth in effervescence, with a slight excess of alkali, in cases of irritable stomach, with much success. Soft boiled eggs, or the yolks of raw eggs beaten up with sherry, brandy, or whiskey, often agree well with the stomach; also beef tea, veal, mutton, or chicken broth, made very strong. All solid food should be reduced to a state of pulp, so that it may be readily swallowed, easily assimilated, and be freely passed into the duodenum. In the case of gelatiniform cancer I have already detailed, the patient was fed for some time on lozenges made of the essence of beef. Milk and soda water often remain on the stomach when nothing else will, but wine seldom agrees, as it generally creates acidity. Brandy and water is often a good drink, particularly if there be much flatulence. If much mucus is secreted, bismuth, in doses of three, five, or even ten grains, given before meals, will exercise a beneficial astringent action; and if there be much acidity, neutralise it with magnesia, either the solution, or small doses of calcined, or with lime water, if there be diarrhœa. Tonic and bitter medicines generally disagree. If there are fœtid

eructations, you will often derive much benefit from half a minim of creasote given in pill, or from finely-powdered wood charcoal: a drop or two of oil of cajeput on sugar is often a good carminative, and sometimes a dose of morphia is beneficial for the same purpose. If there be much pain or nervous irritability, use conium internally and externally, belladonna and prussic acid, in doses of two drops of Scheele's acid in water, or with bicarbonate of soda, or with magnesia. If the vomiting be very distressing, give drinks containing carbonic acid gas; soda water, Carrara, Seltzer, and Vichy waters are all useful. In some cases chloroform, in doses of twenty to thirty minims, has succeeded in allaying pain and vomiting when everything else had failed; but in most cases we can promise but little relief, and that only temporary, as the disease gradually increases, and finally destroys the patient. Constipation is often a very distressing symptom, but is best treated by enemata, or an aloetic or colocynth pill, as they exert their action on the large intestines, and do not disturb the stomach. But, on the other hand, if the pylorus be not obstructed, or if the valve be removed by ulceration, a portion of undigested food mixed with sanious discharge often passes into the intestines from the stomach, and causes colicky pains, diarrhœa, even dysenteric evacuations, and thus hastens the fatal result.

Before leaving the subject of *organic* diseases of the stomach, I think it may be useful to cite the opinion of Dr. Christison, of Edinburgh, with regard to the question of Life Assurance

in connexion with it. He states that "Few questions come more frequently under the consideration of assurance physicians than the risk of chronic organic disease of the stomach. In all ranks of society above the labouring class, stomach complaints are extremely common. Many who suffer slightly, but habitually, in this way, live, nevertheless, to a good old age,—the affection depending only on functional disturbance, and appearing to have little or no tendency to shorten life. On the other hand, similar symptoms accompany the commencement of organic disease, and what is not less important, there is reason to apprehend that functional disturbance, when severe and protracted, or of frequent recurrence, may lead at last to organic derangements. Chronic diseases of the stomach belong to those which are apt to prove fatal about the approach of old age, so that in the case of proposals of assurance about the commencement of old age, a liability to stomach complaints should be received with distrust."*

* Edinb. Monthly Journal, August, 1853.

## LECTURE XVI.

*Hæmatemesis; Pathology; Symptoms.*

We have now considered the inflammatory and specific or organic diseases of the stomach, and have seen that though ulceration of the mucous membrane rarely occurs in the first class of diseases, yet it is of frequent occurrence in the second, and that in this latter class also, we meet with perforation as a not unfrequent result. We have also ascertained, that perforation of the stomach from within outwards may take place under three different conditions; first, as a result of ulceration, simple or cancerous. Secondly, from the action of corrosive poisons; and, thirdly, from the effects of the gastric juice or "digestive solution" after death; but ulceration and perforation may also commence from, and proceed in, an opposite direction, as when an abscess in the liver or spleen opens into the stomach, and in some rare cases, a similar result has ensued on tubercular disease, but tubercles are seldom met with in the stomach. Dr. Copland states "that there is even a *third* mode, not hitherto described, in which atheromatous or fatty deposits in the coats of an artery favour rupture of the diseased portion of the vessel, which becomes the seat of ulceration, and may terminate in perforation."*

* Loc. cit. p. 919.

There is another very important result of ulceration of the mucous membrane of the stomach which I have already alluded to, namely, hæmorrhage, or, as it is technically termed, "Hæmatemesis," on which I wish to make a few general remarks. Although objections have been made to this term, because hæmorrhage may take place from the mucous membrane of the stomach, and no vomiting of blood ensue, as when the quantity of blood effused is very great, or very small, yet it has been so long in use, and is such a common and obvious symptom, that I think it is better to retain it, and, therefore, wish you to understand, by the term hæmatemesis, every case of hæmorrhage from the stomach, whether the blood be ejected by vomiting, whether it be retained in the stomach, or whether it be passed off through the pylorus into the bowels. Hæmorrhage from the stomach is of much less frequent occurrence than either hæmoptysis or epistaxis, but yet comes under our observation sufficiently often to require an accurate investigation into its pathology, symptoms, causes, and treatment. When death has followed immediately after the hæmorrhage, we may find the blood in the stomach in a fluid state, but generally it is coagulated, and the amount varies from a small quantity to two or three pints. In some cases the stomach has been found distended by a large coagulum of blood, but this may also be found as a reddish brown or black pulverulent substance, either mixed up with the mucous secretion and other contents of the stomach (which have an exceedingly sour smell), in the shape of streaks or flocculi, or attached to the mucous

membrane, and especially to the bleeding portions.

When the hæmorrhage is active or profuse, it is generally owing to the ulceration of either the coronary or splenic artery, which has been attacked during the progress of a simple chronic ulcer of the stomach, or to the rupture of an aneurism opening into that viscus or into the œsophagus, or to the bursting of varicose veins in the same parts; but profuse and active hæmorrhage may also occur without any ulceration or visible breach of surface, as sometimes takes place in persons affected with that disease of the liver termed "cirrhosis," the "hob nail," or drunkard's liver.* In this disease the circulation of the blood through the liver is impeded (owing to the contraction of the fibrous capsule of Glisson round the acini), and the stomach and intestines, which return their blood to the portal vein, are, consequently, kept in a state of congestion. This frequently causes an oozing of blood from the mucous membrane of the stomach, and though the quantity is generally so small that it does not excite vomiting, yet it occasionally happens that there is a large quantity of blood effused, so as to excite profuse vomiting of that fluid. This, however, seldom happens, for the congestion is generally but slowly produced, so that the oozing of blood is slight in degree, and the minute vessels probably grow gradually stronger, so as to bear the additional stress upon

* Dr. Law of this city has directed attention to this circumstance in a valuable paper read before the College of Physicians, and published in the Dub. Med. Transact., Vol. I., Part 1.

them. The same thing may happen in organic disease of the heart, or in diseases of the lung; and Dr. Budd mentions that he has seen "profuse vomiting of blood" brought on in this way in persons dying of rheumatic pericarditis, in whom the hæmatemesis was a consequence of the congestion of the stomach, produced by the great impediment to the passage of the blood through the chest; for when the body was examined after death no ulcer, or even abrasion of the mucous membrane of the stomach, was found.* Profuse hæmatemesis may also occur in the early stage of cancer of the stomach, when the submucous cellular tissue is passing into the state of scirrhus, and an additional quantity of blood is directed to the stomach by the growth in the new tissues, so that a state of hyperæmia, or unnatural fulness of the vessels, results, which relieves itself by effusion of blood on the free surface of the mucous membrane, without any visible rupture. Dr. Watson, indeed, is of opinion that every form of hæmorrhage from the mucous membrane of the stomach, takes place far more commonly by exhalation, that is, without any breach of surface, for the mucous membrane is found completely entire, and of its natural consistence and texture throughout. "Sometimes it is found partially red, and pulpy, and vascular; sometimes universally so, the submucous capillary network of vessels being still gorged with blood; sometimes quite pale, the same system of vessels having been completely emptied by the last attack of hæmorrhage; and sometimes

* p. 54.

studded with minute dark points, which could be made, by slight pressure, to start from the surface, and looked like grains of black sand. This latter appearance is very corroborative of the opinion that the blood escapes through the natural pores or channels; which it cannot enter so long as the solids and fluids of the body retain their healthy condition, and these sand-like bodies *are*, doubtless, small portions of blood, which have coagulated in the exhalant orifices of the membrane, and received from them their shape."

An interesting and important question connected with these hæmorrhages by *exhalation*, relates to the mode by which the blood becomes effused. Rokitansky has noticed that the blood vessels were unusually delicate, and easily ruptured in many cases of hæmorrhage that came under his observation; and Mr. Paget has proved the existence of fatty degeneration of the small arteries of the brain in cases of cerebral hæmorrhage. Dr. Williams is of opinion "that, considering the size of the red corpuscles of the blood, and the absence of any visible pores in the walls of the blood vessels, even when examined by the highest magnifying powers, it does not appear possible that those little bodies can escape from the vessels, without rupture either of their own walls or of the vessels. The appearances presented in capillary apoplexy (cerebral hæmorrhage), and hæmorrhagic inflammations of serous membranes, countenance the opinion that many minute vessels become ruptured at once, probably in connexion with an altered state of the blood. Such minute rup-

tures, occurring in membranes, might not be discernible by common modes of examination."* He states that all cases of this description which have come under his notice, have included, as an element, an altered state of the blood, generally of the nature of uræmia, or cholæmia.

In some persons hæmatemesis occurs suddenly, without being preceded by any symptoms referrible to the stomach, but in most cases there has been for some time derangement in the functions of that viscus, when they are suddenly attacked with pain, or a sensation of heat in the epigastrium. This state is soon succeeded by a sensation of general chillness, with a feeling of weight and anxiety in the epigastric region, attended with faintness, and syncope often occurs. The blood sometimes comes gushing out of the mouth, red and fluid, but it is generally of a dark purple, or venous colour, and may vary in amount from a few ounces to several pints. It may be poured out in as great quantity when it comes from simple exhalation of the mucous membrane, without any visible breach of surface, as in cases of ulceration and perforation of one of the large vessels of the stomach. In most cases, however, it comes away in clots of a dark colour, and generally in considerable quantities at a time, mixed with food, or bile, or mucus. Sometimes clots are thrown up, partially deprived of the colouring matter of the blood, and resembling the fibrinous concretions so often met with in the cavities of the heart. In the case of a man, who died

* Principles of Medicine, 3rd edit., pp. 278-9.

under my care in the Meath Hospital, with hæmatemesis from the rupture of an aneurism of the thoracic aorta into the œsophagus, the first clot he threw up was supposed by himself and his fellow-patients to be a piece of meat, which he had swallowed a short time previously.

In other cases the blood vomited may present a dark brown appearance, like chocolate, or coffee grounds, or even black, like ink, if it has been retained in the stomach for some time, and sufficiently exposed to the action of the gastric juice, as is generally the case in what are termed passive hæmorrhages, for the discoloration in these cases is owing (as was first clearly established by Dr. Carswell) to the chemical action of the acids (naturally in the stomach) on the effused blood, and which may take place during life or after death; but if it occurs during life, the blood must have ceased to circulate. We know that a similar change takes place when strong acids are introduced into the stomach from without. "When, for instance, the sulphuric acid, or what is perhaps more to the present purpose, the vegetable oxalic acid, has been taken as a poison, it has the effect of blackening, and, as it were, charring the blood, with which the membrane becomes loaded in consequence of the irritation produced by the poison, and it does this when no destruction of the mucous membrane has been produced."* In some cases, particularly in children, we find minute exudations of blood in the mucous and submu-

* Watson.

cous tissue, instead of being effused into the cavity of the stomach; this is well shown in a plate of Carswell's, which also illustrates the effect of the gastric juice on the colour of the effused blood, as it is represented of a deep brown or black colour along the great curvature and fundus of the stomach, where the blood was exposed to the chemical action of the gastric acid, and it is red at the pylorus, cardia, and small curvature, where it had not been submitted to its influence. After vomiting blood the patients often feel relieved, but generally complain of thirst, with a disagreeable taste in the mouth, and an unpleasant sensation in the epigastrium; the pulse is quick, and the debility is greater than we should expect from the quantity of blood lost. Some hours after the attack, they usually experience colicky pains, attended with a desire to evacuate the bowels, and they pass a quantity of very dark fœtid stuff, often like pitch, which is termed melæna, and consists of decomposed blood, blackened by the action of the intestinal gases. These dark evacuations are a more constant occurrence after hæmorrhage from the stomach, than even vomiting of blood, but they also occur in cases of hæmorrhage from any part of the intestinal canal. In some cases, when we suspect blood to be present, it is not easy at first to determine whether the dark colour be owing to its presence or not; but if you empty the contents of the vessel nearly to the bottom, and then add water to what remains, it will give you the reddish colour peculiar to blood. In most cases the hæmorrhage returns after a few hours, and causes great anxiety to

the patient and his friends, as death occasionally happens during the act of vomiting, from the great quantity of blood lost, particularly if it comes from a large vessel; it seldom, however, proves immediately fatal, but recurs for some days, gradually diminishing in amount and frequency till it finally ceases, leaving the patient in a state of great prostration.

Sometimes, however, death takes place suddenly and unexpectedly when there has been but a small quantity of blood vomited, and yet we may find the stomach and intestines filled with that fluid. In other cases, the hæmorrhage may be very profuse into the stomach and yet no blood vomited, the patient having fallen into fatal syncope. Dr. Gordon, in his clinical reports,* has recorded a remarkable example of this, which occurred in a man who was under his observation for cirrhosis of the liver, and was supposed to be going on well, when he died suddenly. On examination the liver was found cirrhosed, the spleen greatly enlarged, and the stomach distended with black coagulated blood, which had been poured out from the capillary vessels, as there was no rupture of a vessel, nor any abrasion in the stomach.

P. Frank has recorded a similar case, and he also mentions a curious accident which happened to a person whom he was called to when attacked with vomiting of blood: large clots had filled up and obstructed the mouth and larynx, so that the patient had fallen into a state of unconsciousness. Frank removed the clots and the

* Dublin Quarterly Journal, May, 1854.

man recovered. Sometimes the hæmorrhage has never recurred, and the patients have recovered perfectly and rapidly, but in most cases the convalescence is very slow, as a state of great debility is induced, and the derangement of the digestive organs, which usually succeeds, helps to prolong the debility by interfering with nutrition.

## LECTURE XVII.

*Hæmatemesis; General Symptoms; Anæmia; State of Puse; Diagnosis; Causes; Prognosis; Treatment.*

Persons who have suffered from repeated attacks of hæmatemesis are often reduced to a complete state of anæmia, and it may be this condition which first excites suspicion that hæmorrhage is going on from the alimentary canal. In these cases the pulse is generally quicker than natural, and often communicates a peculiar jerk, or thrill, which is an important sign, and should always lead us to suspect some form of hæmorrhage. Dr. Williams is of opinion that this condition of the pulse depends "on an unusual abruptness of the heart's contraction, combined with irregularities in the tonicity of arteries in different parts, which cause these to react in successive jerks at each pulse, instead of simultaneously." In some cases when symptoms of fever appear in a person who is anæmic from hæmorrhage, and in whom the pulse is much accelerated, it may be difficult at first to determine how much the quickness of pulse depends on the fever, and how much on the state of anæmia. A consideration of the other febrile symptoms, such as the temperature of the body, state of the tongue, thirst, urine, &c., will, however, help to form some sort of criterion, as the frequency of the pulse alone does not constitute fever, it is but one of the signs of that state of

the system. In some cases of hæmorrhage the temperature of the skin is moderate, thirst trifling, urine normal, and we therefore may presume that the frequency of the pulse arises from a state of vascular irritation caused by the previous loss of blood. A knowledge of these facts appears to me to be of great practical importance, as in certain diseases frequency of the pulse may be produced by treatment, and this condition of the pulse may increase subsequent to the bleeding, which might lead you to suppose that the fever had also increased. During the period that almost every disease was regarded as inflammatory, and the antiphlogistic mode of treatment was so much in vogue, a frequent pulse was considered as an invariable sign of fever, and according to the then prevailing notion, wherever there was febrile action, there was also inflammation, which was always to be treated by bleeding. It was thought necessary to bleed in every acute disease, and when death took place, if the patient had been bled ten times, the fatal result was attributed to the omission of further bleeding. I have myself, when a student in Paris, in 1835, seen venesection performed again and again (on account of this continued frequency of the pulse), in chlorotic and anæmic girls, particularly when suffering from acute rheumatism, and as the blood became more buffed, owing to the relative excess of fibrine, and murmurs were developed in the heart and blood-vessels, as the red corpuscles were diminished, and the state of anæmia progressed, these were considered signs of the increase of inflammation, and bleeding was persisted

in, so that these patients died by asthenia, or general failure of the vital powers, and after death evidences were found of a deficiency of blood instead of those of inflammation. The exact diagnosis of hæmatemesis is sometimes very difficult, though a profuse hæmoptysis is the only condition we are likely to confound it with, for in hæmorrhage from the lungs, the blood sometimes gushes out, and by its regurgitation into the pharynx, frequently excites nausea and vomiting; besides this, as some of the blood is often swallowed, it is either vomited up in dark clots, or passed off by the bowels, just as in hæmorrhage from the stomach. A careful study of the symptoms will, however, generally prevent our confounding one with the other. Hæmoptysis is generally preceded by cough, and expectoration tinged with blood, tickling in the throat, dyspnœa, a sensation of heat in the chest, sometimes pain in that region, and the blood comes up with the cough, often in a succession of mouthfuls, and usually of a bright red colour, fluid and frothy, but it may be black and coagulated. In hæmatemesis the sensations are referred to the epigastrium, there is greater tendency to fainting, and the blood, though sometimes red and fluid, yet then comes up in one full gush, but more frequently it is vomited in large, dark clots. In some cases, however, blood is exhaled gradually and imperceptibly from the mucous membrane of the nostrils, mouth, or fauces, during sleep, especially in children, and trickling into the pharynx, is instinctively and imperceptibly swallowed, when after a time it is rejected by vomiting, or is passed away by the

bowels, and as it may be in considerable quantity, it has sometimes caused difficulty in the diagnosis; but the general history and symptoms of the case, combined with a careful examination of the parts from which we suspect the blood might have proceeded will, in most cases, clear up our doubts, and enable us to arrive at a correct diagnosis. It sometimes requires great skill and discrimination to determine the actual source of the hæmorrhage, even though we may be certain that it comes from the stomach, for blood may be swallowed by malingerers to escape duty in the army or navy, or by impostors to extort charity, or occasionally by females in even the higher classes of society, from a wilful perversity usually designated hysteria. Such persons may swallow blood in considerable quantity, and then vomit it, according as it suits their purpose. Sauvages, in his Nosology, has recorded the case of a young girl, who, on purpose to escape the discipline of a convent, vomited, for several days, large quantities of blood in the presence of her physician. It was afterwards ascertained that she had swallowed the blood, which was brought to her from the shambles; and Dr. Watson, in his instructive lectures, mentions the case of "a young girl in the Bristol Infirmary, who was in the habit of drinking the blood which had been drawn from the veins of other patients, and which she afterwards vomited to excite compassion." The *causes* of hæmorrhage from the stomach are various, but it is of great importance for the prognosis and treatment, that you should ascertain them accurately. It may be idiopathic, that is, independent of any apparent local physical

change of structure in the mucous membrane of the stomach, or in any organ capable of influencing the circulation through that membrane; but this form is of very rare occurrence. Dr. Watson states "that he has never seen, nor ever read of any instance of hæmatemesis analogous to the epistaxis which is so common in children and young persons, and which affords the most familiar example of idiopathic hæmorrhage." I think, however, we may regard it as such, if it has come on suddenly in the midst of apparent health, if we cannot detect disease in any organ, and if there be a complete restoration of health. Such a case came under my observation about two years ago: a stout, healthy-looking man, æt. 26, a railway labourer, of temperate habits, and in the enjoyment of perfect health, was hurrying to his work after eating a hearty breakfast, when he felt himself suddenly getting weak, and fainted; he then vomited up his food, followed by a quantity of dark clots, and subsequently some florid blood; he was brought to hospital, and was given by the apothecary a scruple of acetate of lead in dilute acetic acid and water in one dose, and then a mixture containing two grains of the same medicine every three hours. Next day he appeared perfectly well but weak. *He told me* that he had not, nor ever had any symptom of disease of the stomach; that he was very temperate, and had not received any injury; he recovered perfectly at the time, so that I think this may be considered as a case of idiopathic hæmatemesis. Dr. George Burrows states "that cases of hæmatemesis have come under his observation, which

have almost invariably occurred in robust women, between the ages of thirty and forty, with sallow complexion and dark hair. The hæmatemesis has been generally very considerable, the quantity of blood vomited often amounting to three or four pints. No obvious cause for the occurrence of the hæmorrhage could be detected, except an insufficient action of the bowels, and all these persons recovered under antiphlogistic treatment, and the free administration of such purgatives as produced copious secretions from the liver and intestines."*

Hæmatemesis, strictly idiopathic, very rarely occurs, but we occasionally meet with one form of it in connexion with, or instead of, certain constitutional hæmorrhages, particularly the menstrual discharge. In these cases the hæmatemesis vicarious of suppressed menstruation generally occurs about the period of the natural monthly discharge, when the female complains of some uneasiness of the stomach, which is sometimes painful and tender. This is followed by vomiting of a dark-coloured fluid blood, small in quantity, and of a very sour smell. The blood in these cases is usually supposed to be exhaled from the free surface of the mucous membrane, and the system is thus relieved as by the natural process, so that the patient recovers her habitual state of health. Similar symptoms recur again and again, until the catamenia are restored, when the hæmatemesis ceases, and is not usually followed by pain, vomiting, or any other symptom indicative of organic disease of the stomach. Dr. Watson says

* Lib. Pract. Med.

that "this form of hæmorrhage is hardly ever a dangerous disease, but yet is not so entirely free from peril as to preclude the necessity of some caution and qualification in stating the prognosis;" and he quotes two cases of Mr. North's, in which suppressed menstruation was followed by repeated and fatal hæmatemesis. "In neither of these women was the health seriously deranged; nor, previously to the hæmorrhage, did there exist debility, or any other symptom calculated to induce the apprehension of danger. In fact, in both of these cases a strongly favourable prognosis was given by experienced physicians a very short time only before the fatal event." Dr. Budd, however, states that "in a large proportion of cases even of this periodical vomiting of blood, an ulcer of the stomach does exist, and is the chief if not the sole source of the hæmorrhage, but the blood, instead of issuing from a vessel of considerable size, laid open by the process of ulceration, as in ordinary cases of simple ulcer, oozes from the minute vessels of the raw surface." Hæmatemesis may be thus symptomatic of disease in the stomach itself, but the pathological conditions mostly conducive to this form of hæmorrhage are, first, congestion of its mucous membrane, either from simple inflammation, or from the action of corrosive poisons, or from malignant disease; second, ulceration, *simple chronic, follicular*, or *cancerous*. Hæmatemesis seldom occurs from simple inflammatory congestion, but there is a form of gastritis (well described by Dr. Stokes), which occasionally occurs after a debauch, and depends on active congestion of the

vessels of the stomach, of which copious hæmatemesis is a prominent symptom. In these cases, besides the vomiting of blood, there is tenderness of the epigastrium, fever, heat of skin, thirst, and longing for cold drinks. The early use of astringent medicines in such cases would be highly injurious, the inflammation must first be allayed by leeches and antiphlogistic treatment; but if these fail, then astringents may be used. This condition must, however, be carefully distinguished from another form of hæmorrhage, also resulting from intemperance, and in which there occurs a profuse discharge of dark blood from the stomach, but which in this case proceeds from a relaxed condition of the vessels, or a state of passive congestion, and requires astringents from the first.

If hæmatemesis be caused by the irritation of poisonous substances, it may occur immediately from sudden congestion of the vessels of the stomach, or not till after some time; and then, either as a result of inflammatory congestion, or owing to the detachment of eschars from the mucous membrane. Dr. Carswell states, that in such cases, "isolated patches, of a dark red, deep brown, or almost black colour, having the aspect of ecchymosis, are found upon the lining of the stomach. When these are examined narrowly, they are found to consist either of blood alone, effused into the mucous and submucous tissues, or of blood and a congeries of tortuous vessels. In such situations, portions of the mucous membrane are observed in a state of sphacelus." Hæmatemesis from congestion may also occur in the early stage of cancer of the stomach, when the submucous cel-

lular tissue is passing into the state of scirrhus, and an increased quantity of blood consequently drawn to the part, to support the growth of the new tissues, before ulceration has taken place. That caused by ulceration, whether simple, chronic, follicular, or cancerous, I have already spoken of in the previous lectures on these subjects.

Hæmatemesis may also be caused by disease in some distant organ, capable of influencing the circulation in the vessels of the stomach (which itself is free from disease). This form of hæmorrhage has been termed sympathetic, and depends on a state of passive congestion, owing to venous obstruction, from some mechanical obstacle to the return of blood. The liver and spleen are the viscera in which the obstruction is most frequently seated, and next in order, the heart, lungs, and uterus. When the liver is the seat of obstruction, we generally find it smaller than natural, and in a state of cirrhosis; but when the obstruction is seated in the spleen, that viscus is mostly enlarged; but not so much from actual disease of its texture, as from distention, by an increased quantity of blood; in fact, whenever the portal system is obstructed or congested, the spleen soon becomes enlarged, as, from its highly vascular and distensible structure, it acts as a reservoir for the venous blood, and thus prevents or diminishes congestion of other organs in the abdomen, but if it is too much congested, or if induration of its substance has resulted from frequent attacks of congestion, the portal vein must relieve itself through some other channel, and hæmatemesis generally results. Latour, in his work on hæmorrhage, has

recorded many examples of the combination of great enlargement of the spleen with hæmatemesis, particularly in persons who had lived in malarious districts, and suffered from intermittent fever. Mr. Twining says, that great tumefaction of the spleen is frequently seen in Calcutta, and that this enlargement often takes place rapidly, so that in a few days it can be not only felt, but seen extending far below the cartilages of the left false ribs, and in some cases filling up half the abdomen. Profuse hæmatemesis sometimes occurs in these cases, and may suddenly cause death; but in other cases, the distended spleen is relieved by the discharge of blood, "which probably comes from vessels communicating directly with the splenic vein, as the enlarged viscus is often completely reduced after these discharges of blood."* In the DUBLIN HOSPITAL GAZETTE for April 1st, 1855, Dr. M'Dowell has recorded the case of a man, who was attacked suddenly with violent and profuse hæmatemesis, while suffering from abscess in the liver; and in vol. ix. of the Transactions of the Pathological Society of London, a case is reported by Dr. Hillier, in which hæmatemesis occurred from an hydatid cyst in the liver, which had communicated by ulceration with a branch of the hepatic artery, the blood having passed into the intestine along the hepatic and common bile duct.

Hæmorrhage from the stomach may be also symptomatic of some diseased condition of the blood, which is exhaled from the surface of the mucous membrane, in some cases owing to a state

* Twining.

of active congestion, as arises in diseases characterised by profuse morbid secretions from the stomach, such as yellow fever, and also occasionally cholera, when the stomach is greatly congested, (as is well shown in a plate of Cruveilhier's,) and the fluid emitted is of a brown or dark colour, owing to the presence of small dark coagula of blood. It may also be the result of a passive congestion; and is met with in those blood diseases in which the fibrin is deficient, though the red corpuscles are in fair quantity, as we find in yellow and petechial fevers, in hæmorrhagic small-pox, and in the pyrexial exanthemata when they assume a malignant type, particularly in scarlatina: I have seen a boy die from vomiting of blood in this disease; and in another case of a child, who died suddenly in scarlatina, and whose body I examined, with Dr. William Moore, we found the stomach and intestines distended with blood, though there was not the slightest breach of surface visible. Hæmorrhage from the stomach may also happen in an opposite condition of the blood, when there is an excess of fibrin and a deficiency of red corpuscles, as in scurvy and acute purpura. Dr. Williams states, that "it appears probable, that an alteration in the *quality* of the red corpuscles and fibrin is at the bottom of the evil in these diseases." He also states, that "in several cases of Bright's disease of the kidney, he has observed the blood discs to be jagged or crenate at their margins, and otherwise imperfect; and that a total destruction of the blood discs was observed in the blood of a person who died of malignant scarlet fever with purpura; and a similar condition in

acute purpura, connected with jaundice; and in cases of disturbed function of the liver, without jaundice."

Dr. Budd considers that "arrest of secretion in the liver" is a cause of hæmatemesis, as, owing to the destruction of the hepatic cells, the blood does not circulate freely through the liver, and congestion of the stomach and intestines results, "just as when a palpable mechanical bar is offered to the free return of the venous blood." We meet with this condition in those cases of acute yellow atrophy of the liver in which jaundice rapidly supervenes, followed by coma and convulsions, from suppressed secretion of bile; and also "in cases of jaundice, from permanent closure of the common gall-duct, when the secreting cells of the liver are destroyed."—Our prognosis in hæmatemesis ought to be always cautious, as it is in most cases a very serious symptom, the most favourable cases are those in which it is vicarious of the menstrual discharge; but even in these cases it causes much anxiety, from its tendency to recur, and from the derangement it causes in the digestive functions; but if there are other indications of organic disease, if it has a tendency to assume a chronic form, and if there be a feverish state of system induced, it is a serious case, and doubtful as to its result. The treatment of hæmatemesis must depend on its nature and cause, and may be divided into the curative and prophylactic. If the hæmorrhage be of an active or inflammatory form, strict antiphlogistic treatment should be enforced: bleed from the arm, or apply leeches to the epigastrium or anus; enjoin rest in the horizontal position; give cold drinks

(iced, if possible)—lemonade, almond emulsion with nitre, water acidulated with mineral or vegetable acids. Keep the bowels open by enemata; and if the bleeding persist, apply ice to the epigastrium, and give the mixture of acetate of lead with morphia. Digitalis and hydrocyanic acid may be necessary to control the circulation; and French writers recommend the application of ligatures round the extremities. If the hæmorrhage be of the passive kind, or occurs in reduced or debilitated subjects, or depends on an altered state of the blood, we must then have recourse to the class of medicines termed styptics—as alum, acetate of lead, nitric and sulphuric acids. "Most of these remedies are astringents, and act by causing contraction of the tonic fibres of vessels and other parts; but some of them also render the blood more plastic and coagulable, and then exercise a twofold influence over the mischief."* Oil of turpentine, in doses of 20 to 60 drops, is a valuable astringent; so is creasote, when applied directly to the part. Gallic acid is a powerful astringent, when taken into the system and mixed with the blood; for though it does not coagulate albumen by itself, yet M. Pelletier has shown that it will do so if mixed with a solution of gum; "but gum is chemically identical (or nearly so) with grape sugar, which is always present in the blood; and thus the gallic acid becomes tannic acid in the blood, and is rendered chemically coagulant or astringent.†" If the hæmatemesis be vicarious of menstruation, bloodletting (if used at all) ought to

* Williams. † Ibid.

be done with great caution; and the same rule should be made as to purgative medicine, which should be only used to procure healthy and regular evacuations, and prevent the accumulation of fæces in the large intestines, which females are so subject to. Ergot of rye, in these cases, given in doses of 10 to 20 grains every three hours, may be useful, but the great indication should be, to establish or restore the catamenial function; and we should therefore examine particularly into the state of the general system, as well as that of the uterine, and direct our remedies accordingly. After the subsidence of the hæmorrhage, we must endeavour to prevent its return, by removing the exciting or predisposing causes: the diet must be carefully attended to; the state of the bowels regulated; freedom from care and anxiety insisted on; and a course of chalybeate medicine given, and continued for a long time, so as to restore tone to the system, and act on the mucous membrane of the stomach.

# LECTURE XVIII.

*Vomiting; its Causes and Treatment; Fermentative form with Sarcinæ.*

I WILL now proceed to consider the subject of vomiting—a very distressing, and often a very prominent symptom, not only of various morbid conditions of the stomach itself, but also of disordered states and diseases of remote parts of the system. I will not enter into the question of its physiology, but commence at once with its pathology and causes. Vomiting may be divided, as to its causes, into—1st, Essential; 2nd, Morbific; 3rd, Mechanical; 4th, Sympathetic; 5th, Nervous.

1st—Essential vomiting is caused by some derangement in the natural secretion of the stomach itself, or by congestion, inflammation, or some structural change in that viscus; and may arise in every degree, from the simplest form of indigestion, to the most violent degree of inflammation caused by the action of irritant or corrosive poisons. In scirrhous degeneration, and in every form of ulceration of the stomach, whether simple follicular, perforating, or malignant, and also in that chronic softening of the mucous membrane, which often occurs in the advanced periods of tubercular phthisis, and which is considered by Dr. Budd to take place after death, from the action of the gastric juice, which has been excited by reflex nervous influence. But I do not agree in this opinion, for I think that the symptoms, in most cases, indicate a deranged condition of the mucous membrane of the stomach, probably an effect of the tubercular dia-

thesis; and you will often find that a drop of creasote, or five to ten drops of medicinal naptha, with a few drops of compound tincture of cardamoms, will relieve it. Dr. Turnbull recommends in such cases a combination of bismuth with gallic acid and opium; and Dr. Seymour (late Physician to George's Hospital) gives four grains of extract of conium two or three times a day, followed by an ounce of lime-water.* The treatment for the other forms of essential vomiting will of course depend on the causes that excite it, and which I have spoken of in the preceding lectures on these subjects; but, as a general rule, a proper regulation of diet is of the greatest importance, which should be given in small quantities, (in a liquid or pulpy form,) and of the mildest kind. 2nd—Morbific vomiting, under which term I include every case caused by a morbid state of the blood, as we see in scarlatina, variola, erysipelas, purpura, pyæmia, cholera, yellow fever, jaundice, and other diseases, in which an effort is made to eliminate some "materies morbi" from the system, through the gastric-mucous membrane. Dr. Budd has alluded to this form, but only with reference to granular degeneration of the kidney; but I think it is applicable to a much greater number of diseases, and deserving of particular attention for its diagnosis, prognosis, and treatment. The history of the case, the nature of the matters vomited, and the condition of the urine, will assist us in our diagnosis,

* Dr. Budd recommends 15 grains of bicarbonate of potash, or 15 drops of liquor potassæ, to be taken two or three hours after meals, or some vegetable astringent before meals.

when our treatment must depend on the nature of the case; but as a general rule we should keep up a good action of the skin at the commencement, and in some cases act on the intestinal canal by purgatives, so as to try and expel the noxious material through that channel. 3rd—Mechanical. Under this head I would include those cases of vomiting which occur in consumption, bronchitis, and pertussis, simply from the violence of the cough causing spasmodic action of the diaphragm and other muscles; also cases caused by distension of the stomach from solid, liquid, or gaseous substances; or owing to pressure applied externally on this viscus by an enlarged liver or spleen, or even from stays being too tightly laced. Certain trades also, by requiring a stooping position, and so compressing the stomach, may cause it; and any mechanical obstruction to the passage of food out of the stomach, or during its progress through the bowels, will have the same effect; but in this latter case the peristaltic action of the intestines is sometimes inverted; their contents pass up into the stomach, and then we have what is termed stercoraceous vomiting; that is, matters vomited having the taste, colour, and smell of fæcal matter. This condition is most frequently met with in strangulated hernia, but also in that disease termed ileus, or "passio iliaca," for which Dr. Seymour recommends two grains of calomel made into a pill with one grain of soft and recent extract of opium, and followed by soda-water in active effervescence. In these cases you should try to determine towards the bowels, by means of calomel and aloes, with hyosciamus, and by enemata.

If these fail, have recourse to galvanism, which I have seen followed by good results. The period of time (after taking food) at which the vomiting occurs, and the nature of the matters vomited, will be our guides in the diagnosis. 4th.—Sympathetic, by which I mean a form of vomiting caused by disease or irritation in some part of the system remote from the stomach, which itself is free from disease. The nausea, in these cases is, generally very distressing; the vomiting very severe, and sometimes uncontrollable till the exciting cause is removed. In some cases the vomiting is merely symptomatic of irritation produced by a natural process, as in that which so constantly occurs in the early periods of pregnancy, which, though in most cases only a temporary inconvenience, the result of sympathetic irritation, yet occasionally becomes so constant and distressing, as to require every exertion in our power to control it,* and in many cases has proved fatal; so that the induction of premature labour has been recommended by many eminent accoucheurs, as the only means of saving life. In a lengthened discussion which took place in the Academy of Medicine at Paris, in March, 1852, M. P. Dubois (one of the most eminent practitioners in that city) discussed the question with great ability; and after proving the great danger of such cases, ten of which had proved fatal within his own observation, he advocated the practice of inducing abortion, even when

* Professor Simpson, of Edinburgh, informs me that in such cases he has given the oxalate of cerium in a small pill of two grains, three or four times a day, with good effect; he regards its action as "sedative-tonic."

there was fever present, as *post mortem* examinations have proved, that even in these cases, there is no evidence of inflammation, either in the stomach or in any other part; and he quoted many cases in which all vomiting and fever had subsided, when the mother had ceased to feel the motions of the infant, which was expelled dead by the natural efforts, in some days after, when abortion occurred spontaneously. Vomiting is well known to occur as a symptom of disease in the brain, acute or chronic; but the history of the case, the pain of head, the dilated pupil, and the slow, labouring pulse, will generally put us on our guard respecting it. The late Dr. Graves, of this city, has made some important observations on vomiting, as indicative of cerebral disease *in fevers*. He states, that whenever typhus fever, scarlatina, variola, or measles set in with severe vomiting, unaccompanied by distinct evidences of gastric inflammation, it indicates an approaching dangerous congestion of the brain; and "*in all feverish complaints, when, during the course of the disease, the stomach becomes irritable without any obvious cause, and when vomiting occurs without any epigastric tenderness*, you may expect congestion or incipient inflammation of the brain or its membranes." He considers that the very great quantity of bile vomited is characteristic of this form, which he termed cerebral vomiting, and which ought to be treated by leeches to the head, and other remedies for cerebral inflammation. Vomiting may be symptomatic of a calculus in the kidney or ureter, but the diagnosis is seldom very difficult, as the situation of the pain in the region of the kidney, or in

the direction of the ureter—its sudden nature and intensity, coincident with severe vomiting, *but a quiet pulse*—will generally enable us to form a correct opinion; but in cases where the vomiting is caused by disease in the kidneys, without any calculus—or even if there be a calculus, and yet so situated as not to cause any pain or tumor—there is often great difficulty in the diagnosis. We must examine particularly into the previous history, and institute a careful inquiry into the present symptoms, as well as a minute investigation as to the state of the urinary secretion, before we can venture on any positive opinion. The following case, which occurred under my care, is a good example of this:—

William Clarke, a car-driver, was admitted into the Meath Hospital for bronchitis. On going round the wards, I observed this man vomiting, and on inquiring as to the cause, he said he vomited constantly, and attributed it to his cough On investigating his case, I found that he suffered from constant dull pain in the right lumbar region, with severe pains in his feet, and vomited every morning, but passed urine without any annoyance. He stated, however, that he was formerly a soldier, and that in Africa, twenty years ago, he contracted fever, and at that period suffered from some urinary affection, having occasional retention, with severe pain in the loins and region of the bladder. He was discharged, and gradually recovering, continued in good health till about six years since, when he was attacked with severe pain in the lumbar and pubic regions, accompanied by obstinate vomiting, which persisted for three days,

when, after violent straining, he passed a small stone by the urethra. The urgent symptoms immediately subsided, and he continued free from sufferring till about three months since, when the symptoms of which he now complains made their appearance. The urine was found to be large in quantity, of a pale opaline colour, alkaline immediately after being passed; specific gravity, 1 007, albuminous. A copious deposit of white sediment subsided to the bottom of the vessel, while an iridescent pellicle floated on the surface. On submitting the urine to microscopic examination, large triangular prisms of the triple phosphate were seen, with amorphous phosphate of lime. I made the diagnosis of a calculus in the right kidney, and put him on a generous diet, with dilute nitric acid, and mild counter-irritation to the right lumbar region, under which treatment he was progressing favourably, when unfortunately he was attacked with erysipelas of the face and fauces, which terminated in death. Both kidneys presented evidences of considerable congestion. In the right one, firmly embedded in its substance, there was a calculus the size of a lozenge, elongated, curved at its extremity; and the whole cortical substance of the organ appeared to be undergoing the process of granular degeneration. The mucous membrane lining the pelvis of the kidney and commencement of the ureter was of a dull white colour, and slightly thickened. The vomiting was caused, I feel confident, in this case, by the mechanical irritation of the tubular structure of the kidney, owing to the calculus; and in this irritation the stomach participated, through the influence of the splanchnic

nerves, from which both the renal and gastric plexuses are derived.

Vomiting, caused by the passing of a gall stone into the duct, is also a good exemplification of the sympathetic form. It generally comes on with sudden, acute pain in the epigastrium or right hypochondrium, attended by distressing nausea, and vomiting of extremely bitter fluid ; the pulse is quiet, but jaundice rapidly supervenes, and the pain often ceases suddenly; an indication, in most cases, that the calculus has passed into the intestine. In these cases, as also in those of severe vomiting, caused by the passing of a calculus from the kidney, you should give one grain of opium with one of aloes, and one of dried carbonate of soda, or from 30 to 60 drops of the solution of muriate of morphia every hour, till the pain is relieved; watching, lest narcotism be induced, though it seldom is while the pain lasts. In some cases I have given a drachm of chloroform with good effect. Dr. Prout recommended bi-carbonate of soda, in doses of one or two drachms, dissolved in a pint of warm water, to be drank repeatedly, to allay the vomiting. I have found it useful, with the addition of two drops of dilute prussic acid to each dose. Vomiting also occurs sympathetic of ulceration of the os or cervix uteri, whether simple or malignant, in mere derangements of its natural functions, or in rupture of this viscus. It may also occur at the period of rupture of the aorta or heart. Dr. Corrigan has recorded two cases, one of a gentleman who was attacked with vomiting, which returned for three or four mornings successively, followed by the symptoms and signs

of aneurism of the abdominal aorta; and another case of a "lady who was seized after breakfast with violent vomiting and colicky pains, so as to give rise to a suspicion of poisoning; but on examination the heart was found ruptured." Bertin, in his work on diseases of the heart, gives a case of rupture of the heart in which severe vomiting occurred, and he attributes the rupture to the vomiting; but it is more probable that the vomiting and spasm were themselves only symptoms of the impression made on the nervous system by the sudden lesion of such an important vital organ as the heart. In the case of the late Dr. Ball, who died of rupture of the aorta, Dr. Aquilla Smith informs me, that vomiting was one of the first symptoms. Vomiting also occurs in diseases of the peritoneum, both acute and chronic, particularly in that form termed tubercular, in which the matters vomited often present a peculiar dark-green or bluish colour (described particularly by Dr. Seymour); and on dissection we find the intestines matted together, and studded over with deposits of tubercle. In these cases the preparations of iodine internally, and the ointment of iodide of lead rubbed over the abdomen, will be found of use.

5th.—Nervous vomiting, by which I mean a form induced by some modification of innervation of the stomach, or independent affection of the gastric nerves, unconnected with any change of structure, or apparent cause of irritation, in either that viscus itself or any other part of the system. We meet with examples of it occasionally in young persons of both sexes, who, without any assignable cause, or from the effect of some sudden or violent men-

tal impression, vomit their food repeatedly; we also meet with it in females the subject of hysteria. It is, I think, to this form particularly that we may refer most of the cases termed by Sir Henry Marsh "regurgitating," which peculiar condition he considers to be "*essentially* a neural affection," and of which he has given a highly interesting and important account in the *Dublin Quarterly Journal* of May, 1851.

This form of vomiting often takes place without any warning, or even effort, being in some cases a species of regurgitation resembling the rumination of certain herbiverous animals; but at other times it is preceded by nausea, heartburn, and accompanied by severe retching. It may occur fasting, when a quantity of stringy matter or bile is vomited; or it may follow the taking of any food, when the chief part is rejected; and it is curious that the most indigestible food is often retained; and though the vomiting may continue for weeks or even months, yet the loss of flesh is not always corresponding, though in some cases patients have been greatly emaciated. It is generally caused by powerful mental emotion, particularly terror, and its duration is very variable; it may be cured in a few days, or last for months, with occasional intermission, and then cease suddenly. It is very liable to relapse, but seldom if ever proves fatal. The treatment of this disease is often very difficult and uncertain; what succeeds in one case may fail in the next. A proper regulation of the mind is essential for the cure, but it is of great importance to keep the bowels open; and some obstinate cases have yielded when a slight

but continuous action has been kept up by mild aperient medicine. Dr. Parry mentions a case in which every thing was rejected by the stomach, even a teaspoonful of cold water; the patient was greatly reduced, when he advised half a grain of aloes to be given every four hours, moistened only by a few drops of liquid. This was retained, and acted on the bowels, when the vomiting (which had lasted for some weeks) ceased in two days. In other cases effervescing draughts with prussic acid or laudanum will succeed; and in hysterical cases, assafœtida, valerian, creasote, will be found useful. When the patients are anæmic, the preparations of iron, quinine, calumba, and quassia may be tried. If there is pain accompanying it, give morphia, hydrocyanic acid, or belladona. External applications are often useful, as blistering, and the blistered part dressed with muriate of morphia; or excite counter-irritation by croton oil, or tarter emetic ointment. The diet should be carefully attended to; in some cases it ought to be highly nutritive; in others a milk diet would answer best. Dr. Barlow, of Bath, cured a patient who suffered from constant vomiting by restricting her to a diet consisting wholly of fresh-made uncompressed curd, on which she subsisted for several months, and recovered perfect health. There is a peculiar kind of vomit, termed, from its appearance, "barmy or yeast vomit," to which much attention has been latterly directed, in consequence of the discovery in it (by Mr. Goodsir,*) of curious organisms, which under the

* Edin. Med. and Surg. Journal, vol. lvii.

microscope appear as square or slightly oblong plates, divided into four equal squares by lines which cross at right angles in the centre, and are again subdivided, so as to

resemble a wool-pack, and hence he has termed them sarcinæ ventriculi. They vary from the 800th to the 1,000th of an inch in the length of their sides, and under a high power present a light-brown or yellow appearance. Much discussion has arisen as to whether these bodies are of animal or vegetable nature, but Mr. Goodsir has decided that they are vegetable, belonging to the species called alga. The fluid vomited in these cases is exceedingly sour, slightly turbid, of a light-brown colour, but presents this peculiarity, that it begins to ferment immediately after its rejection, and becomes covered with a brown froth, like that on the top of fermenting wort, and it is in this brownish substance that these sarcinæ are mostly found, along with the torula or yeast plant. The vomiting generally occurs after meals, preceded by a burning pain in the stomach, and great flatulent distention. The presence of these microscopic plants indicate a dilated condition of the stomach, and fermentation of its contents; and though much importance has been attributed to them, as causing the symptoms and constituting the disease, yet the weight of evidence is in favour of their being merely consequences of certain morbid conditions of the stomach, accompanying a form of fermentation analogous to the *torula fermenti.* As far as we know at present, these organisms are harmless of them-

selves, but they are generally indicative of some obstruction at the pylorus, causing the retention of the food in the stomach, or of very serious functional disease. Dr. Turnbull, who has written a valuable work on this subject, divides the cases in which these bodies are found, into four series or groups, according to their several causes. 1st, cases in which the pylorus is obstructed by simple ulcers, or their cicatrices, or some other non-malignant disease. 2nd, cases of cancer pylori. 3rd, cases in which no disease of the stomach existed, but the pylorus was obstructed by displacement, or some other cause, as by an enlarged liver pressing on it. 4th, cases of mere functional disease; but even in these cases there is generally some cause (though of a temporary nature) which obstructs the passage of food out of the stomach. It is essentially a chronic affection, and though it may occur in young persons, yet it is most frequently met with in the middle aged. The bowels are usually constipated, and the urine (in two cases that were under my care) was highly alkaline in the morning, and presented a copious deposit of triple phosphates, with phosphate of lime; while that passed on going to bed was acid, and left no deposit. In these cases want of sleep was much complained of, and I gave the tincture of lupuline, in drachm doses, with good effect. In most of the recorded cases crystals of oxalate of lime have been detected in the urine. As to the treatment for this affection, the detection of sarcinæ in the matters vomited gives us the practical information, that from some cause or another the food remains too long in the stomach, and is not

properly digested; we should therefore regulate both the quantity and quality of the food, so as to prevent this delay in the stomach, and the liability to fermentation; tender lean roast beef or mutton, strong chicken jelly, beef-tea, or mutton broth, in small quantities at a time, will generally agree; milk, and soda-water, sago, arrow-root, and rice are also of use; all fermented liquors should be avoided, and if a stimulant is requisite let them have brandy mixed with cold water. Dr. Turnbull advises the use of unfermented biscuit instead of bread. The chief remedial agents are such as tend to prevent the fermentative process; of these the bisulphite of soda (introduced into practice by Dr. Jenner) is one of the most effectual, for as it is decomposed by almost any vegetable acid, he supposed that the sulphurous acid set free, would stop fermentation, and destroy the sarcinæ. His conjecture was right, for the fermentation was checked and the patient much benefited. It may be given in doses of ten grains to a drachm, three times a day, dissolved in water, as it is very soluble, and should be taken soon after meals, as that is the time that fermentation commences. Dr. Budd speaks highly of creasote; a minim in a pill, taken after each meal, will not only check fermentation, but often relieves the severe pain which accompanies it. He also recommends common salt, from one to two tablespoonfulls taken twice a-day, in half-a-pint of water. Alkalies have been used in very large doses by patients, of their own accord; but I think they only afford temporary relief, chiefly by neutralizing the excess of acid generated in the stomach. In most cases, indeed, our

treatment can be only palliative, as the causes of obstruction are generally incurable; but as I have already spoken of them in the preceding lectures, I will not recapitulate what I have said on these subjects.

# LECTURE XIX.

*Pain in the Stomach; Gastrodynia; Symptoms; Causes; Diagnosis; Treatment.*

Pain in the stomach is met with under a variety of circumstances, and in very different, or even opposite, conditions of that viscus. Thus it occurs not only as a symptom in its inflammatory and organic diseases, but it may be equally severe when sympathetic of other diseases in remote parts of the system, as in females affected with uterine disorders; or in even a still greater degree in its mere functional and nervous derangements, in which we cannot detect any appreciable alteration of structure. To these latter forms the term gastrodynia is usually applied; and I will therefore consider them under this term, as distinct from the former. Dr. Abercrombie states, that "pain in the stomach occurs in practice under *four* different forms, which seem to imply important differences in the nature of the affection." 1st. 'Pain occurring when the stomach is empty, and relieved by taking food." He considers that this form depends on some degree of acrimony of the fluids of the stomach itself, and is generally relieved by absorbent and alkaline remedies, such as aromatic spirit of ammonia, or magnesia. 2nd. "Pain occurring *immediately* after taking food," and which he thinks is connected with chronic inflammation, or increased irritability of the mucous membrane of the stomach, and should be treated by remedies suitable to that state. 3rd. "Pain beginning from two to four

hours after a meal." This, he thinks, is seated in the duodenum, and connected with inflammatory action or morbid sensibility of its mucous membrane; but as it is often accompanied by pain and tenderness on pressure, in the right hypochondrium, it is often mistaken for disease of the liver. He recommends the sulphate of iron in doses of two grains, combined with one grain of aloes and five grains of aromatic powder, taken three times a day; also lime-water, opiates, and bismuth, combined with rhubarb. Dr. Watson considers that this form of pain is caused by acidity in the primæ viæ, and he prevents it by directing the patient to take a small quantity of alkali in some aromatic water, immediately after his dinner, or a cup of warm tea, by which the acid is diluted. The fourth form of pain in the stomach "occurs at uncertain intervals, in most violent paroxysms, with a feeling of distention, much anxiety, and great restlessness." Dr. Abercrombie considers that it depends on over-distention of the stomach, or may be sometimes seated in the arch of the colon, and is best relieved by carminatives, or by a strong injection. Dr. Watson says that hydrocyanic acid is a most valuable remedy in these cases, also opium; but you should never neglect the use of external applications, as you will give great relief by very hot stupes, particularly if sprinkled with turpentine; or apply a large mustard poultice over the epigastrium. Persons of a gouty habit are very liable to be attacked with this kind of pain, which in them is generally best treated by stimulants and opiates, as brandy and laudanum, with sinapisms applied to the epigastrium and feet; but you should

remember that there is a form of inflammatory gout which occasionally attacks the stomach with violent pain, attended with fever, and demands an opposite line of treatment. In all these patients great attention should be paid to the diet, which must be adapted to each particular case, as what will suit one may not agree with another; but as a general rule, the food should be given at regular periods, in small quantities at a time, and of a plain, light kind, easily digestible.

I will now proceed to consider the true gastrodynia, by which term I mean an affection of the nerves of the stomach, not connected with any change of structure, but characterised by violent attacks of pain coming on in paroxysms, sometimes induced by taking food or drink, but frequently coming on suddenly, without any assignable cause, and often ceasing in a similar manner. The character of the pain varies: some describe it as cutting or stabbing, others as a tearing or burning pain; some say they feel as if the stomach was about to burst, others as if it was constricted by an iron band; and some say they feel as if an animal was creeping inside of them. The pain is seldom continuous, but intermits and recurs again; is not excited nor aggravated by pressure of the hand, but is often relieved by it; and though often so severe as to make the sufferer assume every position, in order to get relief, and even unloose their clothes or stays, so as to take off pressure from the epigastrium, yet it is rather owing to morbid irritability of that part than to any actual tenderness. The pain often radiates round the sides, up the chest, to the shoulders; and some-

times, in females, there is great tenderness in the dorsal region, and pressure on this part aggravates the pain in the stomach. They are often in a state of great anxiety, and sometimes there is violent pulsation in the epigastrium; but the pulse is generally quiet, and there is no fever. The pain may be very violent, and then cease suddenly in a few minutes, leaving the patient nothing the worse, or may last some hours, and then cease gradually, but often leaves the patient tired and exhausted, with a sensation of soreness at the epigastrium. The termination of the paroxysm is sometimes marked by copious eructations of gas, which come up without any effort, and give great relief; in some cases there is a flow of water from the stomach, either insipid or very acid; and in other cases there is vomiting of mucus. The appetite is variable, sometimes increased, at other times diminished, often not affected; while in some cases, particularly in chlorotic females, the most indigestible things are frequently wished for, and there may be even perversion of the natural appetite. Thirst is seldom complained of, and the tongue is often natural in appearance, but may be large and moist, or thickly coated with a whitish fur. They often suffer from headache, costive bowels, irritability of temper, and become hypochondriacal, with all the symptoms of aggravated dyspepsia; but in other cases, though the paroxysms of pain may be very severe, yet there may be no other symptom of dyspepsia, and the patient may digest the food well, and be in good condition. This difference in the symptoms may be accounted for by a difference in the form of the disease. One form, which

we may term functional, appears to be caused by an excessive secretion of unhealthy mucus, which deranges and oppresses the stomach, and is often met with in the lower classes of society, chiefly caused by errors in diet or abuse of stimulants; but prolonged fasting, or drinking large quantities of diluents—as tea, or even water—may have the same effect. Mechanical causes—such as injuries, certain sedentary professions or trades, in which the body is bent up or stooped forward, particularly if after meals; pregnancy also, or any tumor in the abdomen—may cause it, by making pressure on the stomach, and thus interfering with its functions. Certain medicines, also—as the preparations of iodine, balsam of copaiba, quinine, and iron, if continued too long—may have the same effect; so that their use ought to be suspended for a short time occasionally. It is this form of the disease which Dr. Barlow has described, in an excellent article in the *Cyclopædia of Practical Medicine;* but I think he is wrong in applying to every form of the disease his pathology of gastrodynia, "which assigns the spasmodic pain to the presence of offending mucus, and the efforts of the stomach to get rid of it."* The second form, which I will term symptomatic, is essentially a neuralgia; and though very similar to the last form, as regards the pain, yet it differs in its causation, and in its being unaccompanied by any other symptom of dyspepsia. This form of gastrodynia may depend on many different causes. 1st. Disturbance of the nervous system—as anxiety, anger, fear, hysteria,

* Art. Gastrodynia, p. 329.

over-study, particularly if after meals. 2nd. Alteration in the quality of the blood—as in anæmia, chlorosis, purpura, scurvy. 3rd. Hæmorrhages. 4th. Syphilitic, mercurial, paludal, and gouty cachexia. 5th. Diseases in other parts of the system. 6th. Venereal excesses or masturbation in either sex. 7th. Worms. 8th. Hereditary influence. 9th. Sex, as it occurs more frequently in females, particularly in those of a sedentary habit, or subject to depressing influences, either mental or bodily. 10th. Lactation in delicate females, especially if prolonged.

The differential diagnosis of this disease is of great importance for the prognosis and treatment. It is most likely to be confounded with—1st. Simple chronic ulcer of the stomach, as it occurs in much the same class of patients, and the character of the pain is very similar in both; but the aspect of the patient, the history of the case, the irregularity of the attacks of pain, being often quite independent of food or drink taken into the stomach; but above all, the absence of vomiting of pure blood, or of coffee-ground matters, will generally help us to decide; though in some cases where these symptoms are absent, the diagnosis is sometimes very difficult, as I experienced in the case of a female who was under my care in the Meath Hospital, and in whom the paroxysms of pain were attended with great nervous depression, and tendency to collapse, very similar to a case of perforation of the stomach which had occurred some time previously in the same ward. 2nd. Calculus in the cystic or hepatic ducts, or in the gall-bladder, may simulate it; but the severe nausea and vomiting will generally

enable us to make the diagnosis. 3rd. Chronic gastritis; but the absence of pain on pressure (though the spontaneous sensation of pain may be very severe), the irregular course of the disease, its intermissions, and the character of the urine, which is rather anæmic than inflammatory, will generally assist us. 4th. Cancer; but the absence of the peculiar cachexia, the emaciation, the non-existence of tumor, or of coffee-ground vomiting, will guard us from such a mistake. Dr. Budd is of opinion, that if the pain depends on organic disease, it is more severe soon after meals, or when the stomach is full; but if it is the result of functional disorder, it will only occur when the stomach is empty, and will be relieved by food; but this rule does not hold good in even a majority of cases, though attention to it is of great importance with regard to treatment, as in the first class of cases the diet should be light, easily digestible, and our efforts directed to relieve irritation; while in the second class of cases, sedatives generally relieve the pain.

Gastrodynia is a disease of youth and adult life, but seldom attacks before puberty, and is generally curable, though it often continues a long time, and is very liable to relapse, particularly in persons of an irritable and nervous temperament, or in those subject to neuralgia in other parts of the body. There is no disease for which a greater number of remedies have been proposed, than for gastrodynia, and among these narcotics and sedatives hold a high place; but never commence the treatment of a case without having ascertained (as far as you can) to which of the forms above described it belongs, and then be regulated by the

cause. If you are satisfied that there is an unhealthy secretion of mucus by the stomach, you should try to get rid of it, and correct the condition of the mucous membrane which secretes it. Emetics of sulphate of zinc or ipecacuanha are occasionally useful, but in most cases they are not necessary; and you may commence the treatment by two or three purges of calomel with compound colocynth pill at night, followed by neutral salts with magnesia in the morning, so as to act well on the bowels, the discharges from which are generally dark, fetid, and slimy; and you must first improve this condition before you can expect any real change for the better. You may then give an alterative dose of blue pill or calomel every second or third night, followed by a saline aperient in the morning. If a costive state of the bowels persists, Dr. Barlow advises four grains of colocynth with two of henbane every night, and the daily use of an ounce of the following cordial saline mixture, of which he speaks very highly:

℞. Sodæ subcarbonatis, ℥iiss.
Aquæ puræ, ℥viiss.
Acidi sulphurici diluti, ℥ss.
Confectionis aromaticæ, ℥iss.
Spiritûs menthæ piperitæ, m. xii.

Great attention should be paid to the diet, which ought not to be too farinaceous or very liquid. Commence with good chicken-jelly or beef tea, but get them to eat some solid tender meat as soon as you can, and for drink allow weak brandy and water. Bismuth in doses of five or ten grains, either plain or combined with magnesia, often acts well; so does calumba combined with soda. These are also

the cases in which nitrate of silver has often given great relief. You may commence with a quarter of a grain three times a day, combined with aloes or extract of gentian, and let it be washed down with a little water, either cold-boiled, or tepid, or warm, according to the wishes of the patient. In some cases patients complain that any cold drink causes pain, so that you must give them even their medicines in a warm menstruum. In the symptomatic form of gastrodynia, the first object is to relieve the severe pain; and for this purpose you must have recourse to the various narcotics and sedatives, the preparations of opium, morphia, belladonna. Prussic acid combined with soda or bismuth often gives great relief; so does conium and creasote. Nervous medicines are sometimes useful—as valerian, camphor, assafœtida. Dr. Aquilla Smith informs me that he often gives immediate relief by making the patient eat a few blanched sweet almonds. The preparations of iron and bark are useful as preventatives. Vesication over the epigastrium, and dressing it with morphia, often gives relief. The late Dr. Graves had a high opinion of stramonium in this affection; he also advised friction over the dorsal vertebræ with a stimulating liniment; and Dr. Law informs me that he often applies tincture of iodine to the spine with good effect. The diet should be tonic and substantial; in most cases meat and wine may be given. Great attention should be paid to the functions of the skin; tepid bathing, shower-baths, sea-bathing, and plenty of exercise in the open air, should be persevered in. These patients should be freed as much as possible from care, business, or

study. Make them sleep on a mattress, in a well-ventilated room; give up tea, coffee, smoking, snuff, and every habit that can debilitate the nervous system; get them to mix in society; but above all things, if they can afford it, send them to the country, or to travel, or to some of the watering-places; and always endeavour to inspire hope of a certain cure, and confidence in the means, as there is a great tendency to hypochondriasis in all these cases.

# LECTURE XX.

*Dyspepsia; Symptoms; Acidity; Heart-burn; Pyrosis or Waterbrash; Headache.*

I will now proceed to make some observations on that very troublesome affection termed Dyspepsia or Indigestion, by which I mean a derangement in the performance of the natural functions of the stomach, quite independent of any organic or inflammatory disease of that viscus. As the symptoms it presents are very numerous I will merely consider a few of the most troublesome, enumerate the most suitable remedies for them, and then detail the general principles of treatment, warning you that you must constantly vary your treatment according to the cases, as they are often very difficult to manage. Excessive *acidity* of the stomach is a very constant and troublesome symptom, being more often met with, and in a greater degree, in its functional derangements, than in its actual diseases. The gastric juice, in a healthy stomach, ought to be merely secreted in sufficient quantity to act on the food, which if it be of an indigestible kind, or if detained too long in the stomach, then not only an excess of the natural acids (the muriatic and lactic) may be secreted, but other acids—especially carbonic acid—may be generated by a process of fermentation, which causes distention and flatulence. The best treatment for this condition is, first—to regulate the quantity and quality of the food, keep the bowels open by some warm aperient, particularly if the patient be of a gouty

habit, give then a few grains of rhubarb, with one of capsicum, in a pill, just before dinner, and a few grains of bi-carbonate of soda, or potash, about one hour after meals. Let the drink be water; and if a stimulant be required, a little brandy or sherry well diluted, or aromatic spirit of ammonia in a little water. Another troublesome symptom of dyspepsia is *heartburn*, or cardialgia, characterised by a sensation of heat or acidity at the cardiac orifice of the stomach, often extending up the œsophagus, and sometimes accompanied by the regurgitation of an intensely sour fluid, or acid gas, very perceptible to the taste or smell. In most cases it comes on in from one to three or four hours after taking food, is a result of faulty digestion, and mostly met with in persons who lead sedentary lives, or have their minds actively engaged in business. But there is another form which comes on almost immediately after taking food, and often subsides as suddenly, so that it may be termed nervous, especially as it occurs chiefly in persons of a nervous temperament, and who have suffered from exhausting diseases, or mental depression. Dr. Chambers states that this form is often worse after the early than after the later meals of the day, even though the diet should be more sparing, and more digestible.

In this form of heartburn our great aim should be to remove the exciting cause, and invigorate the system by the preparations of valerian, iron, and quinine; but we should commence the treatment by some medicines which we know will act directly on the stomach, as bismuth, hydrocyanic acid, or morphia; but in the first form described, you will

generally give relief by a few grains of bi-carbonate of soda or potash; and in some cases the mineral acids will effect a speedy cure. The late Dr. Prout was very partial to the use of these acids in this condition of the system, especially if there was much flatulence and palpitation, or irregular action of the heart after meals, and if oxalate of lime could be detected in the urine; and Dr. Budd says, that "they are often useful to persons in whom digestion is habitually slow and feeble from a scanty secretion of gastric juice, and who have a sense of weight, or oppression of the stomach after meals."

Waterbrash, improperly termed *pyrosis*, is another very distressing symptom of dyspepsia, and consists in the regurgitation, or sudden gush of a watery or glairy fluid, often insipid, but sometimes highly acid, so as to set the teeth on edge, not painful, but often giving a sensation of extreme cold. Dr. Cullen, who had much experience in this disease, states that its paroxysms "usually come on in the morning and forenoon, when the stomach is empty. The first symptom of it is a pain at the pit of the stomach, with a sense of constriction, as if the stomach was drawn towards the back. The pain is increased by raising the body into an erect posture; and therefore the body is bent forward. The pain is often very severe, and after some time an evacuation of this watery fluid, varying in quantity from a mouthful to a quart, or even more, takes place." The appetite may be good, but there is often thirst and emaciation. In most cases it is a functional disorder, and is accompanied by other symptoms of dyspepsia; but it may be symptomatic of organic disease of the stomach, or caused

by an enlarged liver pressing on this viscus. It affects the female more than the male sex, and is especially liable to occur during pregnancy, if at an early period owing to the peculiar sympathy which exists between the uterus and the stomach; and when occurring at a late period it is probably caused by the pressure of an enlarged uterus on the stomach.

There is much difference of opinion as to the source of the fluid in pyrosis; but I believe it is a morbid secretion, derived (when acid) principally from the mucous membrane of the stomach. However, in these cases, it is not pure gastric juice, but consists of muriatic and lactic acids mixed with mucus and water; but if the fluid be alkaline, it is probably derived chiefly from the salivary and other glands in the mouth, and pharynx; for it then exhibits the ordinary characteristics of saliva, as it is alkaline and opalescent from the presence of the epithelium of the mouth and throat. Dr. Frerichs states, that it converts starch into sugar, and contains cyanide of potassium; so that in these cases it is more likely to be the secretion of the salivary glands, mouth, and œsophagus, rather than a watery discharge from the gastric mucous membrane. In fact, the discharge takes place in a healthy part by reflex irritation from a diseased one; but we cannot determine any fixed rules from the mere acidity or alkalinity of the secreted fluids. In some cases the fluid gushes into the mouth, without any spasm of the diaphragm, or previous warning; but in most, it is preceded by a sense of uneasiness at the epigastrium.

The causes of pyrosis may be divided into idio-

pathic and symptomatic. The first form, common to both sexes, often met with in the lower classes of society, is chiefly due to errors in diet; the second form is mostly met with in females of the better circles, and caused by some fault in the uterine or nervous system. If the diet has been too poor, or too farinaceous, we must improve it by giving a fair supply of animal food before we can expect any change; but if the uterine or nervous system be out of order, we must direct our remedies to them in the first instance. In most cases there is an over secretion of mucus from the stomach, so that astringent medicines are of use, and of these bismuth, lime water, kino, catechu, rhatany, are the best. Nitrate of silver is of use, as it acts also on the nervous system; but a great objection to these medicines is, the constipation they occasion: so that we must keep the bowels open by enemata, or some aperient medicine, which will act on the intestines. Nux vomica is said to be a popular remedy among the Laplanders, who suffer much from this disease; and Dr. Budd says it may be given in pill, in the dose of from three to five grains, three times a day.

Mineral acids are often of great use, but they should be taken when the stomach is empty, as they check the morbid secretion of fluid by their immediate action on its mucous membrane, whereas alkalies ought to be given while digestion is going on, as they act by neutralizing the acid secretions, which are poured out during that process; so that "it is not irrational practice to prescribe regular doses of acids and occasional doses of alkalies for the same patient, but at different periods of the

day, each medicine fulfilling a separate purpose."* If severe pain be felt you must have recourse to sedatives; one or two drops of dilute hydrocyanic acid, with five grains of bi-carbonate of soda, in one ounce of water, will often give great relief, or ten to twenty drops of chloroform may be given, and if these fail, use opium, commencing with one-sixth of a grain three times a day, combined with extract of aloes. Dr. Pemberton was very partial to the compound powder of kino; but its efficacy was probably chiefly owing to the opium it contains, as it not only relieves pain, but also acts as an astringent, and checks the morbid secretion. In some cases, particularly those where the liver is deranged, from three to four grains of Plummer's pill every second or third night, will be useful; in other cases some of the preparations of iron are found to succeed; but no medicines can effect a cure unless great attention be paid to diet, which should consist of plain-dressed animal food, chiefly roasted, and eaten slowly with a small proportion of well-boiled vegetables. Fat, fried, baked or stewed meats should be avoided; also pastry, salads, acid or dried fruits, pickles, fermented liquors, and rich fish, as salmon or herrings. Some cannot eat potatoes without bringing on an attack; in others tea induces it. Sedentary habits predispose to it, particularly if the patient is closely confined to a desk, and obliged to work after dinner. These persons are sometimes sufferers from a form of rumination, owing to the solid food, particularly meat, regurgitating into the mouth at various intervals during digestion. It differs from vomiting, in not being

* Child on Indigestion.

preceded nor accompanied by nausea, or any violent expulsive effort. It is the same affection as that which has been so well described by Sir H. Marsh* as the "Regurgitant Disease," and which he conceives to be chiefly connected with hysteria and struma. But he states that, "in some cases of this singular affection there is present a symptom which indicates the co-existence of dyspepsia, viz., an oppression of the epigastrium;" and also he has met with cases characterised by severe gastrodynia, pain on pressure at the epigastrium, epigastric pulsation during digestion, gaseous distention and eructation, impaired appetite, and regurgitation not only of acid or bitter fluids but also of masses of half-digested food. He recommends in these cases, a drop of creasote, with one-fifteenth or one-twentieth of a grain of muriate of morphia in pill three or four times a-day, with the compound aloetic pill as an aperient, or Prussic acid with or without a few drops of solution of muriate of morphia." Slow eating, perfect mastication, food well selected and restricted in quantity, constitute essentials in the treatment. In fact, these cases are to be regarded as forms of dyspepsia, and must be chiefly managed on general principles.

Dyspeptic patients often suffer much from violent pain in the head, commonly termed sick or bilious headache, which is well described by Dr. Fothergill, in the 6th volume of the "Medical Observations and Inquiries." It generally comes on early in the morning, on awaking or on getting up, when they feel giddy; the pain seldom affects

* Dubl. Quart. Journal Med. Science, May 1851.

the whole head, but most frequently the forehead, or it may be confined to a spot over one or both eyes, and sometimes the back of the head is the part affected. There is often nausea and vomiting of very acid and bilious fluids, when the pain subsides, leaving a sense of soreness of the head, and sleepiness, after which they awake quite recovered but very weak. Dr. Child is of opinion that this condition depends on the accumulation of bile, which takes place during the long fast of the night, as but little bile passes into the duodenum except during digestion, so that this might be obviated by making the patient take a light supper on going to bed, or something to eat before getting up in the morning, or a glass of soda water or Vichy water, or a good substitute for it made by dissolving thirty grains of bi-carbonate of potash in a tumbler of either cold or tepid water, and then adding five grains of citric acid, to be taken while effervescing.

You must distinguish this form of headache from another kind, which is caused by the presence of food in the stomach, and though in some cases coming on immediately after food is taken, yet mostly occurs about an hour after digestion has commenced, and continues during the whole of the process, until relieved by vomiting, either spontaneous, or excited by an emetic of sulphate of zinc or ipecacuanha, which is the best treatment, followed by a mercurial purgative, and small doses of rhubarb and magnesia continued for some days; but in all cases great attention must be paid to the quantity and quality of the diet.

# LECTURE XXI.

*Dyspepsia; Flatulence; Constipation; Loss of Appetite; Condition of Urine; Sympathetic Affections; Causes; Diagnosis.*

One of the most common and constant symptoms of dyspepsia is a sense of *fulness* or distention of the stomach, coming on a short time after food, attended with a sense of constriction, as if the clothes were too tight, so that patients are glad to loose them, in order to get relief; and they are often much annoyed by *flatulence* and eructations of gas, with great rumbling of wind in the large intestines. If this comes on after food, it may be prevented by taking a pill of four grains of rhubarb with one of capsicum before meals; but if it comes on when the stomach is empty, give some carminative—as from thirty to forty drops of tincture of cardamoms, or compound spirit of lavender, or aromatic spirit of ammonia, in a little water, either plain or with a few grains of calcined magnesia. Constipation is another troublesome symptom, and the evacuations are generally dark, very fœtid, often slimy or pultaceous. For this you should give some mercurial, combined with colocynth or rhubarb pill, to act on the liver and large intestines, so as to cause solid evacuations; for undigested substances may remain in the cells of the colon or cœcum for a long time, even though the bowels be moved daily; but be cautious of over-purgation, for patients are often anxious to take medicine, as it gives them temporary relief, by removing unhealthy secretions, whereas our

endeavour should be to prevent their formation, which is best attained by improving the functions of the liver, the stomach, intestinal canal, and the skin, which last is generally dry and rough, or covered with a greasy perspiration. These patients often complain of a peculiar dry, prickly, pungent heat in the palms of the hands and soles of the feet, especially at night, while during the day they are chilly; and the face is pale, with a heavy, dull expression. The appetite may be variously affected—often diminished, or even totally absent, especially before breakfast; or there may be nausea and loathing at the very sight of food, while at other times it may be increased, or even ravenous. To restore or correct this, give an ounce of infusion of chiretta, or half a grain of sulphate of quina (three times a day) half an hour before meals; but when there is disgust at food, you will find much benefit from pepsine, which generally causes an appetite; and in cases where severe pain or uneasy sensations are experienced (after meals,) depending on deficiency of the gastric juice, it is also of use. It should be taken immediately before meals, either in the form of powder dissolved in a spoonful of soup or sweetened water, or rolled up in a wafer, as recommended by Corvisart, Boudault, and Ballard, in doses of fifteen grains, or in drachm doses of "liquor pepticus præparatus," recommended by Dr. David Nelson, of Birmingham, which I believe is analogous to prepared rennet. Nausea and vomiting are sometimes very distressing symptoms, especially if there be much bilious fluid ejected; but you can generally give much relief by regulating the diet, acting on the

bowels by enemata, and giving bicarbonate of soda in solution with dilute hydrocyanic acid, or in effervescence. Bismuth will be of use also, or creasote with aloes in pill. The tongue may present a perfectly healthy appearance, or be coated with a white fur, or be red at the tip and edges, or may be thick and œdematous, retaining the impression of the teeth; and patients often complain of a disagreeable clammy taste in the mouth, particularly in the morning with a peculiar heavy odour from the breath. The urinary secretion varies greatly in dyspepsia: it may be scanty, of a deep red colour, and very acid, often depositing lithate of ammonia or lithic acid crystals; or it may be of a bright amber colour, very clear and acid, with a slight cloud at the bottom, formed of mucus, with minute crystals of oxalate of lime, sometimes visible to the naked eye if exposed to a bright light, but always to be seen under the microscope; or it may be of a high colour, and yet deposit a white sediment formed of phosphates, which is characteristic of a highly irritative form of dyspepsia; or it may be pale, and become alkaline shortly after being passed, depositing triple phosphate with phosphate of lime; or, finally, it may be passed frequently, and in great quantity, like pure water, when the patient labours under much nervous excitement.* In the first of these conditions, Dr. Prout recommends fifteen grains of bicarbonate of soda or potash to be taken three times a day, two

* A small quantity of sugar may be sometimes detected in the urine of dyspeptics; but I will consider this subject when speaking of diabetes, which may be almost considered as a peculiar form of dyspepsia.

or three hours after meals; while to counteract the oxalic diathesis, he advises the nitric or nitro-muriatic acid, from ten to twenty drops of the dilute acid half an hour before meals, in water or some bitter infusion. If the patient is much debilitated, give some preparation of iron about an hour after meals; and if there be much nervous irritability, Dr. Golding Bird recommends sulphate of zinc, in doses of a grain three times a day, made into a pill with extract of hyoscyamus or gentian, and gradually increasing the dose up to five grains—a practice which I have seen attended with much benefit. If the urine be alkaline, with deposit of phosphates, you must try to improve the general health by good diet, wine, or brandy and water, tonic medicines, acids, quina, or iron; and if the secretion of urine be pale, copious, and frequent, you should give valerianate of zinc, or equal parts of infusions of valerian and bark. Besides these symptoms which we may refer directly to the digestive organs, there are many others which we term sympathetic, or affecting distant parts—such as cough, palpitation, intermission of the pulse, anomalous pains in various parts of the body. A "stomach cough" may be generally distinguished from that depending on disease of the lungs by the uneasy sensation referred to the epigastrium, and by its being hard, loud, and coming on in paroxysms generally after meals, and early in the morning. Palpitation is often a very troublesome symptom, and gives much alarm to the patient, as he supposes he is a victim to disease of the heart. Dr. Abercrombie states that "the slightest, and perhaps the most common form, consists of a mo-

mentary feeling of rolling or tumbling motion of the heart, like that which is produced by a sudden surprise or fright; and it is accompanied by an intermission of the pulse, and sometimes by a feeling as if the heart were violently grasped." In other cases there are violent fits of palpitation, with a sense of tumult in the region of the heart, which recur frequently, with or without irregular action of this viscus; and sometimes there is an endocardial murmur, and dyspnœa, which may come on in paroxysms. An accurate physical examination will generally enable us to make our diagnosis, in which we will be assisted by the history of the case, "by the action of the heart being natural during the intervals between the attacks, by the symptoms being most apt to occur while the patient is at rest, especially after meals, not being increased by bodily exercise, but rather relieved by it,*" and by the result of treatment directed to the stomach. But you should remember that dyspepsia is often a result of tubercular disease of the lungs, or of organic disease of the heart; so be always careful in your examination, and cautious in your diagnosis. There is another class of symptoms which have reference to the nervous system, and also cause much distress—such as vertigo, noise in the ears, confusion of thought, defective memory, spectral illusions, irritability of temper, vacillation, despondency; in fact, a state of hypochondriasis, with a want of mental and physical energy often amounting to complete prostration, or rather a sense of debility often more distressing

* Abercrombie.

than actual weakness. I have not time to do more than merely enumerate these symptoms for you, and I must refer you for a full description to the admirable work of Dr. James Johnson,* who, having been himself a martyr to dyspepsia, has graphically described them.

The causes of dyspepsia are numerous and various; they may be divided into physical and moral; of the first class, some act directly on the stomach itself, owing to errors of diet, whether in regard to quantity or quality. The diet may have been insufficient, either from poverty or prolonged fasting, or may have been rich, indigestible, and in too great quantity, or strong tea may have been indulged in. Dyspepsia may be sympathetically induced from disease in distant parts of the body, as we constantly see in the case of females, in whom it is often excited by some derangement in the uterine system, whether it be leucorrhœa, dysmenorrhœa, ulceration of the os uteri, chlorosis, hysteria, pregnancy, or be caused by lactation. We meet with it also in cases of tubercular disease of the lungs, in diseases of the kidneys and bladder, and also in cases of stricture of the urethra, in piles, and in protracted or exhausting hæmorrhages. The second class of causes depend on the state of the nervous system, and mostly occur in persons of the upper classes of society, and of an irritable nervous temperament, usually a result of exciting or depressing passions; or in those who speculate largely, or who have met with reverses of fortune, and have suffered much anxiety of mind, particu-

* An Essay on Indigestion.

larly if the patient be of sedentary habits, and inclined to eat too much animal food, or indulge in pastry. The state of the blood, also, has much influence in causing dyspepsia, whether it depends on mere congestion, as we daily see in cases of diseases of the heart or in capillary bronchitis, especially when occurring in aged or debilitated persons; or whether there be actual impurity of the blood, from defective action of some of the excreting organs, as in cases of congestion or disease of the liver, when the elements of the bile are not properly eliminated; or if there be any disease of the kidneys which interferes with their functions, as we see in Bright's disease, when the urea and other constituents of the urine are retained in the blood, and have even been detected in the matters vomited. Dyspepsia often depends on some fault in what Dr. Prout has termed secondary assimilation, when, though we cannot detect any visible structural change, yet that there is some defect in the nutritive processes is indicated principally by the various conditions of the urine, that I have already referred to. It is probable, however, that some changes occur in the pepsine glands which exercise an influence over the quantity and quality of the gastric juice; for, notwithstanding the important and accurate anatomical as well as microscopical researches of Dr. Handfield Jones and others, into the intimate structure of the stomach, there are, possibly, deviations from health of the gastric mucous membrane, and of the epithelial cells, which we have not yet detected, but which are the causes of deranged digestion.

The *differential diagnosis* of dyspepsia is some-

times very difficult; that is, to determine whether it is merely a functional affection, or symptomatic of some disease of the liver or stomach, especially cancer or chronic ulcer; but the history of the case, the aspect of the patient, the unaccountable changes in the digestibility of the same kind of food at different times, and the absence of the signs of organic disease, which I have already enumerated when speaking of those diseases, will, in most cases, prevent your making a mistake.

# LECTURE XXII.

*Dyspepsia; Treatment—Dietetic; Medicinal; Alkalies; Acids; Bismuth, Ipecacuanha, Nitrate of Silver, Tonics; Morbid conditions of the Appetite.*

The *treatment* of dyspepsia is various, as it depends on the exciting cause, for many, and even opposite conditions of the stomach may give rise to it; but as time will not allow me to enter more at large into this subject, or to consider its various forms and degrees, I must content myself with giving you some general principles, which will be of use against the more ordinary forms of that troublesome affection, and refer you for a full description to the valuable article on "Indigestion" by the late Dr. Todd, of Brighton, published in the *Cyclopædia of Practical Medicine.* The first indication should be, to remove or correct the causes which have induced the disorder. These I have already alluded to; but as errors of diet are the chief physical causes of indigestion, there are a few obvious but very important rules (laid down by Dr. Abercrombie) which you ought always to bear in mind. He is of opinion, that in the regulation of food, much more depends on the quantity than the quality of the food; and he advises, 1st, "To restrict the food to such a quantity as the stomach shall be found capable of digesting in a healthy manner." 2nd, "To avoid indigestible articles of food, the mixing various articles which are of different degrees of solubility, and to masticate the food carefully." 3rd, "Not to take in

additional food until time has been given for the solution of the former." It is sometimes difficult to get patients to submit to these rules, as they often find themselves getting thinner and weaker; and thinking it is from want of sufficient food, they wish for tonics and stimulants to rouse their appetite, and eat more food than they can digest. Dr. James Johnson (a great sufferer himself from dyspepsia) has laid down this very good rule to guide us:—"Any discomfort of body, any irritability or despondency of mind, succeeding food and drink, at the distance of an hour, or even a day, may be regarded (other evident causes being absent) as presumptive proof that the quantity has been too much, or the quality injurious." He recommends, in cases where a high degree of morbid sensibility prevails, farinaceous food as the least irritating to commence with; and advises four ounces of thick gruel, sago, or arrowroot to be taken three times a day, with intervals of six hours between; then to try beef-tea, with well-toasted bread; and then gradually to bring the stomach to digest some plain and tender animal food, as chicken or mutton; and according as the digestion improves, some well-boiled vegetable—as cauliflower or a mealy potato—may be tried; their effects, however, should be watched with great care, as all vegetable substances are apt to ferment and turn acid; but well-boiled rice, with the gravy of roasted meat, makes a very palatable and wholesome substitute for them. Bread is a good article of diet, as it contains all the materials requisite for nutrition, and is well suited to weak digestive powers; but it should be used stale, and

in moderation, as, if it be eaten too fresh, or in greater quantity than the stomach can digest, it will ferment, and cause acidity or heartburn. Good fresh cow's-milk is usually easily digested; but if heavy for the stomach, it may be mixed with soda-water, seltzer, or lime-water; and it will sometimes agree when constituting the sole diet (milk diet), though it could not be borne as part of a mixed diet; or it may be given in the shape of curd loosely coagulated by rennet, and is very palatable mixed with white sugar, and (if the stomach can bear it) cream or sound white wine and nutmeg. Professor Oppolzer, of Vienna, prefers sour milk to sweet milk, because in it the casein is finely divided, and consequently more easily digested. Dr. Wood, of Philadelphia, recommends (in some cases) small quantities of sweet cream, and also ice-cream; but it should be allowed to dissolve perfectly in the mouth before being swallowed; he also allows good fresh butter, but condemns its use in dyspepsia, "if it has been subject to any culinary process, as heat has a very injurious effect upon it." Soft-boiled eggs, or the yolk of eggs beat up raw with water, or with wine, or brandy, or whiskey, may be sometimes allowed; but, as a general rule, custards are bad for dyspeptics. Chicken or turkey, tender mutton or beef, are the most digestible articles of animal food to commence with, and they are better roasted than boiled; but the skin, fat, and tendinous parts should not be eaten. The dyspeptic should avoid ducks, geese, salted or cured meats, soups, gravies, twice-dressed meat; also veal, pork or the flesh of very young or of old animals, as it

is less digestible than that of the prime of life; and you should be aware that the flesh of wild animals is generally more easily digested than that of tame. Fish, especially shell-fish (except oysters) should be avoided; also pastry, and all raw, or pickled, or flatulent vegetables, acid or preserved fruits. Fluids should be taken at all times in small quantities, and always after meals. Good spring water is the best general drink for dinner, but if a stimulant be required, you may allow the addition of some white wine which is free from acidity, as sound old sherry, or Manzanilla,* Marsalla, or Arinto, which are cheaper, but good wines. Claret will often agree with dyspeptic persons, and so will some of the other light French and Rhenish wines. A little brandy or whiskey may be taken in cold water, but punch or malt liquors must be forbidden. As a general rule, three meals a day may be allowed, with proper intervals between them, and they ought to be taken (if possible) in cheerful company; but the patient ought never to indulge in a hearty meal or in late suppers; nor should he eat if much fatigued or hurried, as he ought to take his food slowly, and masticate it carefully; in fact, he should be cautious not to overload his stomach, and ought to dine off one dish, as the least deviation from strict rules of diet may induce a relapse of all his sufferings. Stale bread and milk or cocoa (if they agree) is the best

* This is not a very palatable wine (though it has lately been much recommended), and I have been informed that the natives of that part of Spain, who make much use of it, are very subject to nervous affections especially tremors of the limbs.

breakfast; but in most cases you may allow black tea, not very strong, or even coffee, with bread and butter; and some dyspeptics breakfast best on a chop or cold meat and a glass of water. A light tea, bread and milk, or a cup of gruel, sago, or some such farinaceous food, either plain or with a teaspoonful of brandy, may constitute the third meal; but remember that these rules of diet are not absolute; for though one patient may require to be kept on a rigid farinaceous diet, another may improve under animal food and stimulants.

Exercise is an important item in the treatment of dyspepsia, but ought to be taken cautiously at first, so as not to over-fatigue the patient, and ought always to precede meals. Walking, riding or driving, and boating, are the best forms of out-door exercise; while in bad weather, or for those who are confined to the house, gymnastics and the various popular games may be substituted for them; but after a time more active exercise should be taken, as field sports, cricket and other such games, walking up mountains; and recommend the study of botany, as it engages the mind, and acts as a stimulus to outdoor exercise, particularly with females. Dyspeptic patients should give up the use of strong tea or coffee, tobacco in any form, and all habits that tend to enervate the body or mind—all sensual excesses or slothful indulgences; they should sleep on a mattress, in a large and dry well ventilated chamber, in the upper part of the house; should go to bed early, and not remain there for longer than six or eight hours; but if there is restlessness and a feverish state at night, with want of sleep, a tepid bath before going to

bed will often afford much relief. They should sponge themselves with tepid or cold water every morning, and rub the skin with a coarse towel; a shower bath will also be of much use; but they should relax their mind from study or business, and if possible go off to travel and amuse themselves.

As to medicinal treatment, be cautious and sparing of medicines at first, for there is often much harm done by making the patient swallow a quantity of physic when his stomach can scarcely digest the lightest food. The chief indications are, first to correct the secretions, and improve the morbid condition of the stomach; second, to regulate the bowels; and thirdly, to stimulate the stomach to perform its functions in an efficient manner. In some cases it will be good practice to commence the treatment with an emetic of ipecacuanha; but if there is congestion of the liver, a defective biliary secretion, with scanty secretion of high-coloured urine depositing lithates, you should commence by a mercurial purge; then give small doses of blue pill and rhubarb at night, followed by taraxacum, either plain or combined with senna, in the morning, and an occasional aloetic purge, or an enema, so as to act on the large intestines. A certain class of medicines are usually recommended in all "stomach complaints," but you should be cautious in their use, as, if employed indiscriminately, or at an unseasonable time, they will do more harm than good; but if judiciously used, and combined with the rules of diet I have already laid down, they will be of the greatest utility. The principal remedies used in

dyspepsia are. first, antacids, of which we have a goodly array in the preparations of soda, potash, ammonia, lime, and magnesia. The alkaline bicarbonates are generally preferable to the pure alkalies, and of these the salts of soda act more especially on the liver, increasing the secretion of bile; while those of potash act on the kidneys; and the salts of ammonia determine to the skin, and are especially useful in many of the nervous affections attendant on indigestion. Dr. Prout recommended that alkalies (in small doses) should be taken from three to six hours after a meal, "in order to *neutralize acids already formed*, for they have no effect in *preventing acidity;*" "on the contrary, when taken in large doses, and at improper times, the effect of alkalies is to cause an absolute increase of acid; for when a large quantity of alkali is taken into an empty stomach, the immediate effect is, that the stomach, in endeavouring to resume its natural condition, throws out an additional quantity of acid to neutralize the redundant alkali." Some practitioners are much influenced in their prescribing of alkaline remedies by the condition of the urine; but this is often a fallacious guide, for Dr. Bence Jones has shown that when the stomach secretes a large quantity of muriatic acid, the urine passed soon after meals is often alkaline from a fixed alkali, and yet that passed at another time of the same day will be acid; "so that the prescription of acid or alkaline remedies must never be made to depend on the reaction of the urine passed at any one period of the day; for at one hour acids may appear to be indicated, and at another alkalies." Dyspepsia may

often be cured by a very opposite line of treatment—namely, by acids; and of these the nitric has been greatly praised by Pemberton, and by Abercrombie, who says that "it is often found one of the best tonics, and one of the best correctors of acidity." The late Dr. Prout recommended nitric and muriatic acids, or nitro-muriatic acid, for the deranged state of the stomach that is met with in what he termed "the oxalic diathesis," and which is characterised by distressing flatulence and palpitation or irregular action of the heart, with intermission of the pulse, occurring some time after meals. Dr. Budd states that "these acids are also often useful to persons in whom digestion is habitually slow and feeble from a scanty secretion of gastric juice, and who have a sense of weight or oppression at the stomach after meals; and also in the indigestion (described by Pemberton) attended with excessive formation of lactic acid, that occurs in weak and nervous persons, and when the stomach has been weakened and disordered by some distant source of irritation." The best way to give these acids is from three to four drops in a little cold water an hour before meals; but Dr. Prout advises "their effects to be watched, and when they begin to produce a deposition of the lithate of ammonia, or of lithic acid, their use must be suspended." A medical friend has informed me that he has derived great benefit from dilute sulphuric acid, in doses of twenty drops in water three times a day; and I have used the dilute phosphoric acid with much success, especially in cases of dyspepsia where the urine passed before meals was neutral, or very feebly acid. In using

the mineral acids, you must take care not to injure the teeth, which is avoided by using a straw or glass tube to suck the acid up with, and rubbing some butter over the teeth previous to taking it; or washing the mouth immediately after with some aromatic spirit of ammonia in water. These acids all appear to act as tonics, but another acid much used in dyspepsia—namely, the hydrocyanic, —acts as a sedative, especially in nervous persons, or those debilitated by disease, and its action is often improved by combining it with the bicarbonate of soda or potash, or with limewater, particularly if there is much acidity of the stomach. This is a favourite combination of Dr. Bright's, and I have often prescribed it with much advantage.

Subnitrate of bismuth is another remedy much used in stomach affections, but it often fails, from not being suited to the proper case; it is of no use in gouty dyspepsia, or when there is organic disease of the stomach; but Dr. Budd recommends it in the dyspepsia of tubercular phthisis, and in that form caused by some irritation in a distant part, which is characterised by pain in the stomach, with increased secretion of gastric juice. It is best given in doses of from five to ten grains in water, or in a solution of magnesia, or in limewater. The subcarbonate of bismuth has been lately recommended in preference to the nitrate, as being more soluble in the gastric juice, and not constipating the bowels; I have tried it, but did not find it to possess any advantage over the other. Ipecacuanha is useful as an occasional emetic in some cases of dyspepsia; but in that form in which the gastric follicles are chiefly affected, it is often

of more permanent use when given in small doses; and it has been especially recommended by Daubenton, the French naturalist, as a remedy in cases where the digestion is slow, where the food lies heavy on the stomach, and there is an inability for mental or bodily exertion for some time after meals —a form of indigestion, he says, very common in men of middle age who lead sedentary lives; he gave it in the morning fasting, in doses of a quarter of a grain to two grains, just so as to cause a slight vermicular motion in the stomach, but without exciting any pain or nausea; if it does so, this may be obviated by combining it with subcarbonate of ammonia, capsicum, limewater, or sulphate of quina. Dr. Budd speaks highly in its favour, and says "he is satisfied that it often has much efficacy in removing the uneasiness and sense of oppression after meals, and the various other evils that result from slow digestion." He also recommends its use in urticaria, the result of indigestion, in the dose of from half a grain to a grain and a half, combined with three or four grains of rhubarb, immediately before dinner.

Nitrate of silver has been strongly recommended by the late Dr. James Johnson in cases of morbid sensibility of the gastric and intestinal nerves; it may be combined with any bitter or aperient extract; and he recommends to give quina (in solution) at the same time, "for that form of dyspepsia which is more marked by the morbid sympathies of distant parts, than by *apparent* disorder in the stomach and bowels themselves." He states also "that no inconvenience can possibly result from the medicine if not continued

beyond three months at a time." Vegetable bitters and mineral tonics, especially the preparations of iron, are of great value in the treatment of dyspepsia, but should not be given till all irritability of the gastric mucous membrane has been subdued by diet and medicine; nor should they be given "in organic disease of the stomach, in plethoric states of the system, or if there is a furred tongue, or when the urine throws down a sediment of lithic acid, or of lithate of ammonia."* The best vegetable bitters are quassia, calumba, gentian, and chiretta, which last is much used in India, as it promotes the secretion of the liver, and does not constipate the bowels; I have often found it to answer when the other bitters had failed. As a general rule, these vegetable bitters agree well with those who have become dyspeptic from hard drinking or from nervous exhaustion, and the best time for giving them is about half an hour before meals. Chalybeates are also of great use, (especially in that form of dyspepsia to which scrofulous persons are liable, and hence termed "strumous dyspepsia,")† as they act not merely by improving the quality of the blood, but also as alteratives, particularly when combined with iodine. The ammonia-citrate and ammonia-tartrate of iron are nice preparations, and generally agree well with the stomach, but if there is any disposition to sickness or nausea, or furring of the tongue, Dr. Budd advises to combine them with the bicarbonate of soda or potash. The muriated tincture of iron alone, or combined with dilute muriatic acid, will often be useful, and so will the

* Budd. † Todd.

carbonated chalybeate waters, but in all cases where the preparations of iron are given, you should take care that there is no bilious derangement or congestion of the liver, and that the bowels are in a free state, else the tongue will be furred, and headache will result; indeed in most cases it will be good practice to combine some aperient with these medicines.

Dr. Johnson speaks highly of sulphate of quina, in doses of half a grain, three times a day, dissolved in some bitter tincture; he says, "it strengthens the digestion, and imparts tone and tranquillity to mind and body." The state of the skin should be carefully attended to, and flannel or silk worn next to it; a warm or opiate plaster over the epigastrium will often be of great service; the feet should be kept warm, especially at night, and to effect this, use mustard pediluvia, or have the feet bathed in cold water for a short time previous to going to bed, and then well rubbed, so as to cause good reaction.

Before concluding the subject of dyspepsia, I wish to say a few words on some morbid conditions of the appetite, which, though not (strictly speaking) diseases of the stomach itself, yet, as the most prominent symptoms are caused by an altered sensibility of the nerves and a modified state of the secretions of that viscus, I think they may be properly considered in this place. 1st, Exaggeration of the natural appetite, termed Bulimia. This consists in an excessive or insatiable craving for food, and may vary from that due to exhaustion or mere habitual gluttony, to a state of actual disease in which the patient gets into most violent

excitement, or even frenzy, if not satisfied. Some of these persons digest their food, and become very fat, but others suffer from constant diarrhœa, often very fetid, and emaciate rapidly. This disease may come on suddenly, without any assignable cause, and cease in the same manner, but generally supervenes gradually, and is mostly met with in idiots, epileptics, and insane persons suffering from chronic disease of the brain; but may occur in hysterical, chlorotic, pregnant, and phthisical patients; also in those suffering from intestinal worms; and it is a very prominent symptom in the disease termed diabetes, and also in some cases of mesenteric disease. An abnormal condition of the stomach and intestinal tube has been found in some of these cases; these viscera have been enormously distended, or the ductus choledochus has been found opening into the stomach; the gall-bladder has been wanting, or the intestinal canal has been unnaturally short, in persons affected with this disease. The treatment should be directed to correct the morbid condition of the system which gives rise to the affection, and to reduce the quantity of food gradually. Dr. Copland recommends "an active course of nauseating purgatives, consisting chiefly of the oil of turpentine with castor-oil;" but you will generally find that opium will be of great use as an auxiliary to other treatment. 2nd, Depraved appetite, termed Pica, which is manifested by the desire of eating substances totally unfit for food—as cinders, clay,* thread,

* A remarkable case of this is recorded by Dr. Pickell in the fourth volume of the *Transactions of the Association of Physicians in Ireland.*

paper, sealing-wax, hair, glass, pins, needles, and sometimes for things disgusting, as vermin, ordure, &c. Thus I have seen a child about six years old, whose great delight was to roast mice and eat them; and in some cases there is the same perverted taste for fluids—as ink, vinegar; even urine and blood are greedily sought for and drank. A form of this disease has been described by Dr. John Hunter as "dirt-eating," a practice common with the negroes in the West Indies; but it is probably taken by them to neutralize acid in the stomach. This affection generally depends on some disordered state of innervation of the stomach or some distant part, or upon disease of the brain; it is met with in cases of mania, hysteria, chlorosis, and in anæmic children, especially if suffering from intestinal worms, and to a certain degree in some females when pregnant; but it may occur when none of these conditions are present, and may be practised in such a concealed way as not even to excite suspicion. A curious case is recorded by Mr. Marshall, in the thirty-fifth volume of the *Medico-Chirurgical Transactions*, of "a lady who suffered for many years from sickness and pain in the stomach, with occasional vomiting of blood, and a tumor in the left iliac fossa, which moved freely across the abdomen, and felt like an ordinary placenta. It gave her no pain when she was quiet, nor was it tender to the touch; and was found, after death, to be the stomach which was drawn down to the pelvis, and resembled a champagne-bottle in form; and in the lower half, which constituted the tumor felt during life, were found an immense number of

pins, of a purple-black colour, not corroded, varied in size, all bent or broken, many very pointed. The weight of the pins contained in the stomach was nine ounces. In the duodenum was a mass of pins tightly packed, of various shapes, similar to those found in the stomach, *and wholly obstructing the tube.* These weighed a *pound.*" It was curious that her husband stated he never had observed her putting pins into her mouth; but her son, seventeen years of age, said he had often observed her biting pins; and her sister said that, when a child, she was fond of eating starch and slate-pencils, and biting pins. The proper treatment for this affection consists in improving the general health, and correcting the state of the nervous system which has induced it. They should be carefully watched, so as to prevent their having access to the forbidden articles. If the patient is pregnant, she should be well purged; if it occurs in a chlorotic female, give aloetic purgatives, with emmenagogues and the preparations of iron. If she be hysterical, treat her with antispasmodics; and if it occur in children, always examine for intestinal worms, and treat them with anthelmintics; regulate the bowels, improve the secretions, and give tonic medicines, with wholesome digestible food.

There is a another peculiar affection, the chief symptoms of which are also referred to the stomach, it is termed *polydipsia*, from the insatiable thirst which characterises it, though there is no fever, and often but little derangement of the general health; the appetite may be natural and the food well digested, but they often complain of a sen-

sation of sinking at the stomach, with great debility, excessive thirst, and dryness of the mouth and pharynx; but it is a curious fact that if an acute disease supervenes, the thirst, instead of increasing, as we might expect, actually decreases, but increases again on the subsidence of the acute disease. The saliva is scanty and viscid, the skin is generally dry and rough, and they pass a large quantity of limpid urine, very deficient in urea, but not containing sugar or any abnormal ingredient and hence it has been termed *diabetes insipidus*. It is a rare disease, but two years ago I had a case of it (in this hospital) which I published in the transactions of the College of Physicians.*

This affection has often been mistaken for diabetes, but differs in many respects from it: 1st, it often commences in infancy; 2nd, the general health is not necessarily affected, nor are the generative organs, as in diabetes, nor is there the emaciation and weakness, and *ravenous appetite*, but above all, the urine is not saccharine. Many, considering this as a nervous affection, have recommended opium, valerian and antispasmodics. My patient was greatly benefited by a mixture containing twenty grains of oxalic acid and a drachm of liquor potassæ dissolved in eight ounces of water, of which he took an ounce every three or four hours; and I also allowed him a pint of porter daily.†

* *Dublin Quarterly Journal*, February, 1856.

† Frank advises a drachm of nitrate of potash in that form termed sal-prunelle, to be dissolved in a pint of water, and a wine glassfull taken every second hour; and Dr. H. Kennedy has published some cases in which he used nitric acid with good effect.

If this disease begins early in life, it gradually increases up to puberty, and remains stationary; but when it attacks adults it may increase rapidly. It is very difficult to cure, and is very liable to relapse; but though it generally lasts for many years, and keeps the patient in a state of debility, yet death seldom results from it. Its causes are very obscure; it chiefly affects the scrofulous and those of a lymphatic temperament, and appears to be hereditary in some families. In the case under my care, the patient attributed it to his being exposed in an open boat with the sea washing over him for some hours.

THE END.